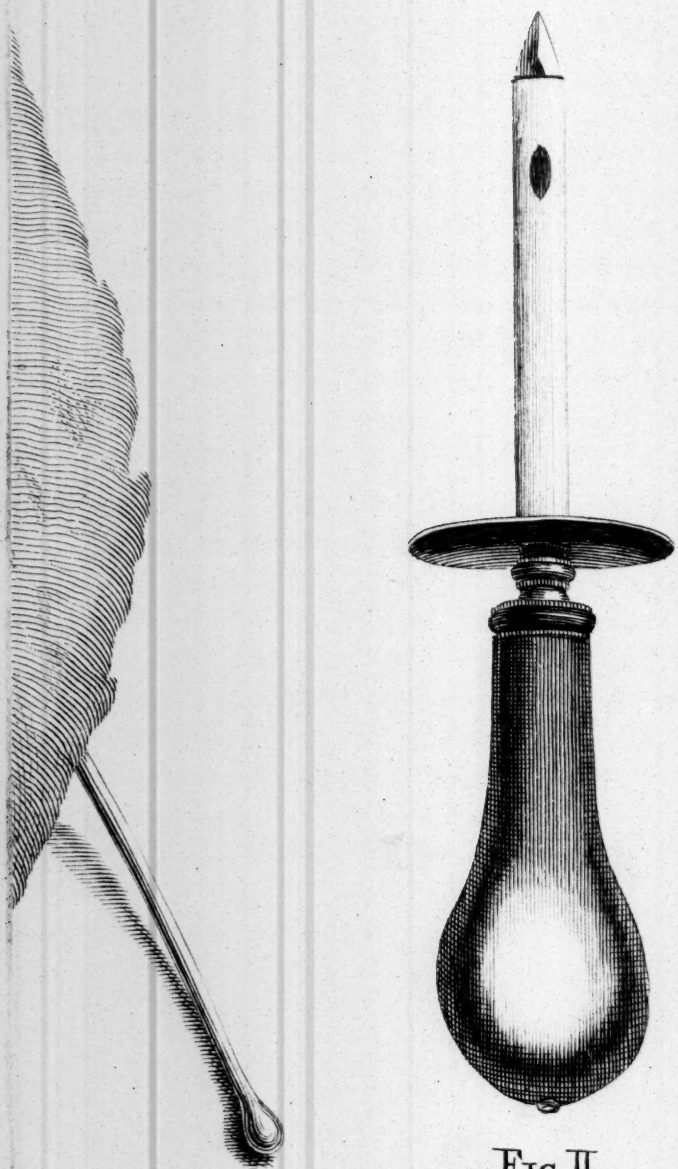

FIG. II.

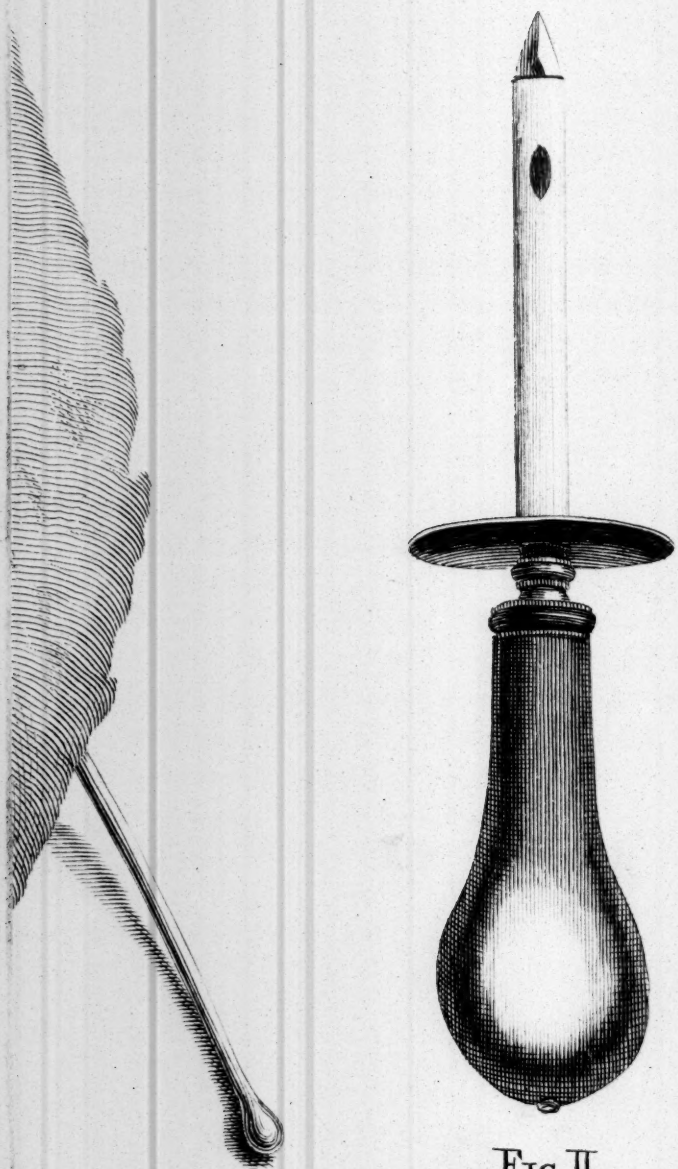

FIG. II.

OBSERVATIONS

ON THE

DIFFERENT METHODS made USE of for the

RADICAL CURE

OF THE

HYDROCELE,

OR

WATRY RUPTURE,

And on other DISEASES of the TESTICLE;

TO WHICH IS ADDED

A COMPARATIVE VIEW of the DIFFERENT METHODS of CUTTING for the

STONE;

With some Remarks on the Medicines generally exhibited as Solvents of the STONE.

BY *WILLIAM DEASE*,

SURGEON to the UNITED HOSPITALS of St. Nicholas, and St. Catherine.

DUBLIN:

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M DCC LXXXII.

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TO

HENRY MORRES, Esq.

SIR,

THE following obſervations treat of diſeaſes that require an exertion of thoſe abilities, which eminently characteriſe a good ſurgeon: this alone would have been a ſufficient motive for my addreſſing them to you, who have juſtly acquired the higheſt profeſſional reputation. But I muſt own I had a much ſtronger inducement; for I was anxious to embrace the firſt opportunity of giving a public teſtimony of the eſteem, in which I, in common with every practitioner who wiſhes the advancement of ſurgery in Ireland, muſt neceſſarily hold you. To you, ſir, the

the profeſſion muſt be ever indebted for the diſtinguiſhed zeal with which you embraced the meaſures that were propoſed to raiſe it from the ſtate of obſcurity, in which it was hitherto involved; and for the unremitted attention, however as yet ineffectual, you have ſince given to carry thoſe meaſures into execution, by obtaining a patent for the incorporation of ſurgeons into a Royal college.

It is an unfortunate circumſtance, and a humiliating reflection, that the beſt inſtitutions, even thoſe that have contributed moſt to the publick welfare, have been ſo ſlow in their progreſs, that the age, in which they commenced, has rarely

ſeen

ſeen their full eſtabliſhment. Mankind, in general, look with frigid indifference, and even with contempt, on all new inſtitutions: This is ſtrongly evinced by the many oppoſitions the Royal Society of London met with, in the beginning, from ſome of the firſt literary characters of the age; and the preſent ſtate of phyſick in Ireland may ſerve to juſtify this reflection.

The number of ſtudents in phyſick and ſurgery, that are neceſſary to ſupply a ſucceſſion of practitioners to Ireland, may be moderately computed at about three hundred: they are generally indebted either for the whole, or the finiſhing,

of

of their medical education to foreign univerſities; and this at a very conſiderable expence. It naturally occurs to enquire why, at this enlightened period throughout Europe, we, in particular, ſhould labour under ſo great a national diſadvantage.

It is evident that, in attaining all the ſtudies preparatory to that of phyſick, we poſſeſs more advantages than moſt other kingdoms: Our Univerſity is juſtly conſidered as holding a diſtinguiſhed rank among the firſt in Europe: there is a profeſſor of anatomy, chemiſtry, and botany on the Univerſity foundation; and Sir Patrick Dun, a phyſician, in the beginning of this century, left his fortune.

tune, which is an increaſing eſtate, and at preſent exceeds ſix hundred pounds a year, for the purpoſe of inſtituting lectures * on all the branches of phyſick, to be given regularly at proper ſtated times to all ſtudents of phyſick. So that in Dublin, if a young man can but maintain himſelf, he ought, at no expence, to

* By the will of Sir Patrick Dun, thoſe lectures were to be given in Latin, which circumſtance I have heard ſometimes mentioned as an apology for not giving them at all; but ſurely this pretext is ſo fooliſhly abſurd, that it is impoſſible it ſhould ever have been ſeriouſly urged. Is not the benevolent intention of the teſtator ſufficiently clear in the whole diſpoſition of the will? Does there not exiſt a tribunal, which power may authorize, and common ſenſe direct, to give operation to thoſe intentions in the moſt effectual manner? Or ſhall an incidental phraſe, that has nothing to do with the general purpoſes of the will, be conſidered as the only part of it, endued with the ſacred character of the Median Laws, though the deſtruction of the whole is the neceſſary reſult?

to paſs through a courſe of medical ſtudies under the moſt eminent practitioners. But, unfortunately for this country, what an ingenious writer * has remarked of Univerſities, in general, has been hitherto but too applicable to our own, with reſpect to this branch. He ſays, 'The endowments of ſchools 'and colleges have neceſſarily 'diminiſhed more or leſs the ne-'ceſſity of application in the 'teachers. Their ſubſiſtence, ſo 'far as it ariſes from their ſala-'ries, is evidently derived from 'a fund altogether independent 'of their ſucceſs and reputation 'in their particular profeſſions.' And again, 'In other univerſi-'ties the teacher is prohibited 'from

* Smith, Wealth of Nations.

'from receiving any honorary
'or fee from his pupils; and his
'ſalary conſtitutes the whole of
'the revenue which he derives
'from his office. His intereſt is,
'in this caſe, ſet as directly in
'oppoſition to his duty as it is
'poſſible to ſet it. It is the in-
'tereſt of every man to live as
'much at his eaſe as he can;
'and if his emoluments are to
'be preciſely the ſame whe-
'ther he does or does not per-
'form ſome very laborious du-
'ty, it is certainly his intereſt,
'at leaſt as intereſt is vulgarly
'underſtood, either to neglect
'it altogether, or, if he is ſub-
'ject to ſome authority which
'will not ſuffer him to do this,
'to perform it in ſo careleſs
'and ſlovenly a manner as that

'authority

'authority will permit. If he 'is naturally active and a lov-'er of labour, it is his intereſt 'to employ that activity in 'any way, from which he can 'derive ſome advantage, ra-'ther than in the performance 'of his duty, from which he 'can derive none.'

The college of Edinburgh, which has drawn ſuch an afflux of ſtudents from other parts of the world, derives it's celebrity from comparatively apparent diſadvantages. The profeſſors there have but a ſmall ſtipend; but this excites their induſtry, which is amply rewarded by the number of pupils that attends them; and to which the city of Edinburgh

is much indebted, for it is calculated that they expend there above ſeventy thouſand pounds a year.

In Dublin, the want of regular lectures on the different branches of ſurgery has the worſt influence on the profeſſion, which muſt ultimately prove extremely injurious to the publick.

It is evident that the preſent mode of ſurgical education is very defective; and the conſequence is, that, when a young man is out of his apprenticeſhip, he is generally obliged to go abroad, at a certain expence, to perfect himſelf. This very often does not

not turn out much to his advantage, and that for want of acquiring an early habit of application.

To remove all thoſe impediments, and to form as reſpectable a ſyſtem of medical education as any in Europe, requires but that a becoming ſpirit ſhould pervade the two profeſſions of phyſick and ſurgery, to co-operate in their ſeparate departments, and regularly diſcharge their reſpective duties. Should the ſurgeons of Dublin obtain the king's patent to incorporate them into a Royal College, I make no doubt but they would ſtrenuouſly endeavour laudably to emulate their brethren

thren on the Continent. Then our young men will find in their own country, and, what is very important, under the inſpection of their friends, and at much leſs expence, all the advantages that well regulated lectures, and the attendance on our numerous hoſpitals muſt afford; and the nation will be ſaved a conſiderable expence.

To you, Sir, I willingly ſubmit theſe few thoughts on the preſent ſtate of ſurgery here, confident of approbation, as however imperfect, they are not altogether unworthy the patronage of a gentleman, who, in promoting the advancement of the profeſſion, approves himſelf

himſelf a friend to the intereſt of mankind.

I am, Sir,

With perfect eſteem,

And ſincere attachment,

Your very humble ſervant,

WILLIAM DEASE.

Uſher's-Quay,
20th March, 1782.

OBSERVATIONS

ON THE

DIFFERENT METHODS made Uſe of for the RADICAL CURE

OF THE

HYDROCELE,

OR

WATRY RUPTURE,

And on other DISEASES of the TESTICLE.

SECTION I.

Of the Hydrocele in Children, with the Method of Cure.

THERE are many diſeaſes, which, although they do not immediately endanger life, yet render it extremely uncomfortable, if not perfectly unhappy; and ſuch, among others, is that which is the object of our preſent enquiry. Thoſe infirmities, which a miſtaken delicacy obliges the patient

to conceal, are not only peculiarly diſtreſſing to the mind, but often prove fatal in their conſequences. How many local complaints are rendered incurable, or become ſuddenly mortal, by the patients imprudently concealing them? There are few who do not reluctantly own their having a rupture: the conſequence generally is, that the inteſtine not being early returned, and ſupported by a well adapted truſs, the patient is continually in imminent danger of miſerably loſing his life; or from the length of time, volume of the inteſtine down, and the adheſion it may contract with the ſurrounding parts, it becomes incapable of being reduced; the unhappy ſufferer drags out a painful exiſtence, and at laſt falls a victim to his falſe delicacy.

In like manner, in general, do thoſe act who have the misfortune to labour under an hydrocele: In the beginning, if they apply for relief, the delicacy of the part intimidates them from ſubmitting to any method that may be propoſed for the radical removal of the diſeaſe: They are content with the palliative one of tapping, by which they believe neither their life or teſticle are brought

brought into danger. The conſequence is, that, by the long continuance of the diſorder, the tunica vaginalis becomes prodigiouſly thickened, and the teſticle, by the conſtant maceration in the water, is either morbidly enlarged, or its texture totally ſpoiled. Some unlucky accident, or the patient's being fatigued with the complaint, obliges him, at laſt, to ſubmit to the radical cure; when he muſt often, under thoſe circumſtances, run the double riſk of life and teſticle.

This is not the caſe with thoſe, who have fortitude and prudence enough to ſubmit early to the radical cure: For, if the diſeaſe has not proceeded from a ſcirrhous teſticle, and cancerous virus, the operation of the cauſtick totally deſtroys the power of the inhaling veſſels of the tunica vaginalis, and radically rids the patient of a moſt diſagreeable complaint, without his undergoing many painful or dangerous conſequences.

As this ſubject has engaged the attention of the firſt ſurgical characters, I ſhall here, for the moſt part, only offer the reſult of my own experience.

It is evident, that a fine lymph is continually inhaled into the cavity of the tunica vaginalis teſtis, and occaſionally abſorbed, in the ſame manner as in all other membranous cavities. Whether an hydrocele proceeds from a morbid ſtate of the inhaling or abſorbing veſſels, or from a rupture of the lymphaticks, is of no great conſequence to the practitioner to be informed of: he muſt conſider it, in general, as a local affection, depending on ſome of the cauſes before mentioned; and his attention muſt be to procure ſuch a ſuppuration, in the cavity of the tunica vaginalis, as will effectually deſtroy both the inhaling and abſorbent ſyſtem: an event which, I believe, no practitioner will deny to take place where a radical cure has been effected.

We have now to enquire, what period of the diſeaſe is the moſt proper, to undertake the radical cure of an hydrocele, and in which we are moſt likely to ſucceed.

Secondly, what are the more elegible means to procure the ſuppuration that will be neceſſary to effect a cure.

THIRDLY, what ſhould be the objections to our undertaking any method of radically curing this diſeaſe.

And firſt, in order to conſider, as to the moſt favourable period of this diſorder to attempt a radical cure, we muſt diſtinguiſh hydroceles, into thoſe that ariſe from accidental cauſes; and into thoſe that are the effect of a previous morbid ſtate of the parts, ariſing from ſome particular diſpoſition in the habit of body: In ſhort, into ſuch hydroceles as may be termed ſimply local, where the diſeaſe is limited to a collection of water in the tunica vaginalis teſtis, in a patient of an otherwiſe healthy habit of body; and into ſuch as proceed from, or are attended with, painful enlargements of the teſticle, in ſubjects who labour under viſceral obſtructions, or have any acrimony or cancerous tendency in their ſyſtem.

ALTHOUGH no age is exempt from this diſorder, yet we more commonly meet with it in children, or in thoſe who are about or after forty; except where an accident, or ſome

venereal complaint, has been the cauſe of the diſeaſe.

MANY children are born with an hydrocele; and it is ſeldom that we have occaſion to have recourſe to any other means for their radical cure, but a ſimple puncture with a lancet, corroborating fomentations, and gentle purgatives. Although the diſeaſe ſhould appear again, we muſt repeat the operation; and it ſeldom happens that the complaint reſiſts one, two, or three punctures, made at due intervals *.

BUT, in children from two to ſeven, or upwards, although, from the irritability annexed to this period of life, a ſimple puncture is very often productive of ſuch an inflammation, as in the event effects a radical cure; and that we have more advantageous recourſe to topical applications, &c. yet the diſeaſe ſometimes reſiſts all thoſe means; and we are obliged to put in practice ſome more effectual, in order to accompliſh our deſign.

IT is very rare that, in thoſe tender years, the teſticle is any way affected: The accumulation

* Vide Note I.

lation of water, in the tunica vaginalis, ſeems to ariſe from a local defect in the conſtrictive faculty of the inhalents; otherwiſe, why ſhould we ſo frequently experience the good effect of aſtringent fomentations in curing this diſorder.

That an inflammation may cauſe an adheſion of the tunica vaginalis with the teſticle, is what, although I have not ſatisfactorily ſeen, yet I will not deny: But that a gentle general ſuppuration of this membrane is capable of anſwering every intention, of radically curing this diſeaſe, by deſtroying or obliterating the ſyſtem of inhalents, and ſo preventing a return of the diſeaſe, is what all the experience I have had confirms. For, during the progreſs of the cure, I have attentively watched the coming away of any ſloughs; but could not diſcern any thing, which bore the leaſt reſemblance to the tunica vaginalis teſtis: And after the cure was effected, except in the point where the cauſtick was applied, there appeared no adheſion of this membrane round the teſticle.

As, at this period of life, there is ſeldom any conſtitutional objection to undertaking the

the radical cure; and as it is a diſeaſe that ſhould not, by any means, be ſuffered to grow with the child; what will be the beſt method, of radically curing it, preſents itſelf next to our conſideration.

I HAVE frequently remarked that groſs heavy children, ſubject to breakings out and running of the head, and behind the ears, when they are imprudently dried up, often fall into an hydrocephalus internus; of which ſome recent caſes and diſſections of this kind*, in which I was engaged, gave me the moſt convincing proof; nor do I believe there is a more powerful means of preventing an increaſe of the diſeaſe, than directing our chief indication to procure an abundant diſcharge from the head.

IF we ſhould judge from analogy, I would, in every child of ſuch an habit of body affected with an hydrocele, previous to putting in practice any of the methods hereafter to be mentioned, try firſt the effect of ſimple puncture with a lancet; procuring a large diſcharge from the head; gentle purging; alteratives, and corroborating local applications. If theſe ſhould

* Vide Note II.

ſhould not ſucceed, we muſt have recourſe either to the inciſion, ſeton, or cauſtick.

WHATEVER method we adopt, we muſt previouſly conſider that the part engaged is a very important gland, enveloped in a membranous ſack, the tunica vaginalis teſtis. Experience ſhews that the worſt conſequences ſucceed the ſuddenly expoſing, by inciſion, membranous cavities, in which parts ſo exquiſitely ſenſible are lodged, particularly if they are not morbidly affected.

Now in children, who are much more ſenſible of pain than adults, if we ſhould, by inciſion, lay open the cavity of the tunica vaginalis teſtis, and ſuddenly expoſe the teſticle both to the air and rude contact of dreſſings, we muſt expect, in general, many ſevere and painful conſequences, and the happy event will be very doubtful: For although I never ſaw a child die in conſequence of putting this method in practice; yet I have ever ſeen it attended with high inflammatory ſymptoms; and in one caſe, the particulars of which I do not recollect, after a year the diſeaſe returned.

The ſeton is liable to much the ſame objections: To leave an extraneous body in continual contact with a part ſo exquiſitely ſenſible, muſt be productive of much more pain and inflammation, than is neceſſary to perform a cure. This I will conſider more at large in another place.

The cauſtick is not liable to thoſe objections, as far as I have experienced; and I will briefly lay down the method I have adopted, ſince I read Mr. Elſe's ingenious Eſſay on the Hydrocele.

In boys, under the age of fifteen, the integuments of the ſcrotum are generally thin; nor does the tunica vaginalis teſtis ever acquire that callous thickneſs, as it does in thoſe advanced in years, from a continuance of the diſorder. I therefore, in general, diſpenſe with letting the cauſtick lie on the part; and only take a piece of pipe lapis infernalis, and having wet the end of it, rub the anterior and inferior part of the tumour to about half the breadth of a ſix-pence, and continue rubbing until the part is thrown into an eſchar: This is attended with very little pain: I then apply a pledgit of ſoft ſpermaceti ointment,

ment, and plaſter over; and order the ſcrotum to be wrapped in the flax ſeed pultice, to be occaſionally repeated, and ſupported with a bag truſs.

It muſt be confeſſed that, in this method, the operation of the cauſtick is ſlow, and may ſeem rather tedious: But then the patient is amply recompenſed by the little pain he ſuffers, and the abſence of all thoſe high local and general inflammatory ſymptoms, that attend the other methods.

In the courſe of the cure, the teſticle will become more or leſs enlarged; and we ſhould be careful to have it fomented, three or four times a day, and the emollient pultice conſtantly applied, ſupported by the bag truſs; and the patient purged every third or fourth day.

After the tunica vaginalis appears, the ſpot intended to be perforated, if thin, may be punctured with a lancet; but if we ſlightly rub it with the cauſtick, it generally ſloughs off: The water drips gradually away, in which a few ſloughs commonly appear from time to time: Thoſe ſeem to be detached

tached only from the parts immediately adjacent, and are not the entire tunica vaginalis flung off. A ſuppuration ſoon takes place from the inſide of the ſack: All enlargement gradually ſubſides; the diſcharge daily leſſens; and a cicatrix is ſoon after formed, which adheres to the teſtis, at the ſpot where we applied the cauſtick; and a radical cure is the conſequence*.

In this method, there is no fear of the cauſticks ſpreading to a greater extent, than we deſign it ſhould; but where the integuments are thick, we may apply the cauſtick, as we do in adults.

SECT. II.

Of the Hydrocele in Men, and the different Methods propoſed for its radical Cure conſidered.

An Hydrocele, in men, is a very ſerious complaint, and requires, in the Surgeon, the moſt attentive conſideration of the general ſtate of the patient's conſtitution,

* Vide Note III.

on, and the cauſe that gave riſe to the diſorder, previous to his adopting any method of treatment; as otherwiſe it frequently happens that the patient, in any method, is made to run the moſt imminent danger of loſing his teſticle, and perhaps his life.

In young healthy men, it is ſeldom an hydrocele appears, but from the patient's having met with ſome accident, or in conſequence of a venereal ſwelled teſticle.

I have ſeen ſome caſes, where the patient very juſtly imputed the diſeaſe to his having had the teſticle hurt by a jolt on the pommel of the ſaddle, in riding: Others to ſome bruiſe or hurt. After the pain, and any inflammation, which immediately attended the accident, had ſubſided, a fullneſs in that ſide ſtill remained more or leſs: the patient, very often, not beſtowing any attention in the beginning of the diſeaſe: And it often happens, that thoſe accidents are only productive of a temporary pain, which ſoon paſſes; and the fullneſs of the ſide of the ſcrotum affected is not noticed for ſome time.

WHETHER thoſe accidents, and the irritation they are productive of, occaſion a greater ſecretion of lymph into the cavity of the tunica vaginalis teſtis, at the ſame time that the functions of the abſorbents are ſuſpended by the injury, is a queſtion hard to determine; and really of no material conſequence, as to the cure of the diſeaſe: certain it is, that from ſuch accidents ariſe hydroceles.

WHEN the patient is of a vigorous habit of body, poſſeſſing great firmneſs of ſolids, we find the diſtenſion of the tunica vaginalis both quick and painful; whereas in thoſe who are of a relaxed weak fibre, or groſs and phlegmatic, the diſtenſion, for the moſt part, is unattended with any pain, and the progreſs of the diſeaſe rendered imperceptible. In either of thoſe caſes, the diſeaſe being merely local, the teſticle not being, in general, materially engaged, there can lie no objection againſt our undertaking the radical cure.

A SWELLING of the teſticle, in conſequence of venereal affections, often proves painful, tedious and obſtinate: Thoſe enlargements are ſeldom or never ſo completely diſcuſſed, but what the epididymis remains larger than uſu-

al.

al. It is very reaſonable to ſuppoſe, that the texture and functions of the teſticle, and tunica vaginalis, may, from repeated inflammations, be conſiderably altered, and injured, ſo as to occaſion an hydrocele; and in fact, ſuch caſes are not unfrequent. *

In an hydrocele, the conſequence of a venereal enlargement of the teſticle, it is extremely neceſſary, previous to our putting in practice any method of treatment, that we ſhould get every poſſible information, as to the exiſtence of any of the venereal virus: This we will be enabled to judge of, by conſidering the virulence of the diſeaſe, and the treatment the patient underwent to get rid of it.

If any probable doubts ſhould ariſe, and that it is reaſonable to imagine the patient to be ſtill infected, before we have recourſe to either the palliative, or radical cure, I would adviſe a courſe of the ſaponaceous mercurial pill;

* The day in which I write this, I tapped a man of thirty for an hydrocele, which he ſaid proceeded from a venereal ſwelled teſticle he had about nine months ago. After tapping, I could ſcarcely perceive the teſticle was enlarged; but he had a ſlight running, which he ſaid he never got clear of from the time he contracted the clap.

pill; or friƈtions of a drachm of mercurial ointment, applied to the legs, and ſo regulated as not to take to the mouth much; fomentations of the hemlock leaves, and a pultice of the ſame, applied to the part.

When, by thoſe means, any remaining virus is ſubdued, and the enlargement leſſens, if a reabſorption of the water in the tunica vaginalis does not take place, the puncture, with a courſe of tonicks after, will bid fair for radically curing this diſorder.

In thoſe caſes, although no ſtrong ſuſpicion, of the exiſtence of the venereal virus in the ſyſtem, can be entertained; yet, at all events, as the patient cannot be materially injured by the treatment, I think we may make a prudent trial of mercurials.

We will now enter into a more full diſcuſſion of the proper means to be put in practice, for the radical cure of an hydrocele affecting men in the full vigour of life, ſuppoſing there lies none of the objections I have already mentioned: And therefore, we muſt re-enter on our remarks on the methods by inciſion, ſeton, and cauſtick.

But it will be neceſſary, firſt, to conſider the conſequence of performing any operation on men in full vigorous health, or that are very little removed from ſuch a ſtate, for local complaints.

All operations, where tenſe membranous parts are divided, cavities ſuddenly laid open, and ſome important viſcus expoſed to the air, muſt be ever followed by acute inflammatory ſymptoms, and many nervous affections; the intenſeneſs of which will, in general, appear in a ſuperior degree in thoſe, who are the leaſt removed from perfect health, and whoſe ſolids poſſeſs their natural irritability, neither blunted by pain or familiarity with preceding ſickneſs. This diſpoſition is certainly very unfavourable for performing an operation, where we ſuddenly expoſe one of the moſt ſenſible glands of the body to the air, and conſtant contact of dreſſings.

In every caſe I have ſeen, or where I performed myſelf the operation for an hydrocele, either by ſimple inciſion, or by taking away as much as we can of the thickened tunica vaginalis teſtis, the conſequences, in general, were as follows:

If the ſimple inciſion was adopted, the operation is done both eaſily and expeditiouſly: There is ſeldom any conſiderable hemorrage, or none but what may, in general, be reſtrained by lint or agarick, without having recourſe to the ligature.

From the inſtant the operation takes place, the patient is under continual pain and inquietude; his pulſe generally low, quick and hard; he gets but little ſleep, and that not refreſhing, notwithſtanding the adminiſtration of opiates; the pain ſhoots up the ſpermatick chord, and affects the belly and loins; the more acute general inflammatory ſymptoms are often preceded by a nauſea, or vomiting, and ſmart rigor, ſucceeded by heat and thirſt; the teſticle and ſpermatick chord become painfully enlarged, and drawn up towards the abdominal ring: Thoſe ſymptoms continue with more or leſs violence the firſt days. It is ſeldom that any conſiderable remiſſion takes place, before a ſuppuration is formed.

Should we inſpect the wound the third day, the lint generally ſticks faſt, and all appears tumidly crude. If the hydrocele was of a long ſtanding, and had been, previous

previous to the undertaking of the radical cure, repeatedly tapped, the tunica vaginalis is generally more or leſs thickened, and a ſuppuration effected with great difficulty.

When a ſuppuration at length takes place, the general inflammatory ſymptoms, pain, &c. ſubſide more or leſs. On the removal of all the lint, the teſticle, and inſide of the tunica vaginalis, remain expoſed throughout their ſurface, and the dreſſings are in conſtant contact with the firſt. The tunica albuginea muſt ſuppurate more or leſs: And an abſceſs in the body of the teſticle ſometimes occurs, which may totally ſpoil its texture, and deſtroy it's functions.

Should the teſticle be morbidly enlarged, we may judge what dangerous effects may be the conſequence of expoſing it to be inflamed, and perhaps to ſuppurate. In this caſe, we will be obliged to have recourſe to caſtration: An operation imminently dangerous to the patient's life, and at beſt, rendering it ever after rather uncomfortable.

If an oval piece of the teguments is removed, with as much of the tunica vaginalis as the Surgeon can conveniently come at, the operation is painful and tedious beyond expreſſion, and the ſubſequent ſymptoms run, in general, much higher *: And after all the patient muſt ſuffer in either method, and the riſk he muſt run, the radical cure will remain doubtful; and there are inſtances where the diſeaſe has returned †.

That many of thoſe painful and dangerous conſequences are the effect of expoſing, by the operation, to the air and contact of dreſſings, in a large extent of ſurface, parts ſo exquiſitely ſenſible, will appear from experience: For it often happens that, on a puncture being made ſimply to evacuate the water of an hydrocele, in one, two, or three days after, the ſack

* Vide note IV.

† Mr Douglas has adopted this method on a very erroneous principle; for he conſiders the cyſt of an iucyſted tumour, and the tunica vaginalis, in the ſame light; and from thence deduces the neceſſity of extirpating it: But when we conſider that one is an adventitious morbid part, the other the natural envelope of the teſticle, I preſume that this inference will be rejected: a locked jaw being ſometimes the conſequence of this operation, of which I have known a recent inſtance.

ſack appears as much, or more diſtended than before the puncture, more or leſs painful and inflamed, particularly in young people: A more obſcure fluctuation is felt, than when only water fills the ſack; as it is generally an extravaſation of blood, from the diviſion of ſome artery in the operation.

When, in this caſe, we lay open the ſack by inciſion, and diſcharge the extravaſated blood, the tenſion, &c. ſubſides; and the ſubſequent ſymptoms never, as far as I have ſeen, run near ſo high, as in thoſe caſes we juſt mentioned; although the operation is the very ſame. We muſt therefore, attribute the difference, in the ſymptoms being infinitely more mild, to the cavity of the ſack, and the teſticle, not being immediately expoſed to the air, or rude contact of dreſſings: For, on our dividing the ſack, we find it's cavity filled with blood, ſome of it coagulated into clots; and the teſticle, except where we are too officious to remove them, is not to be ſeen.

Things remain much in this way, until after the ſuppuratory fever is over, when the inflammatory erithiſm is abated; and

neither the air or dreſſings are productive of the painful effects they otherwiſe would be *. Beſides, there are ſome operations in ſurgery, which it is ſafer for the patient to have done by degrees; and this, I am confident, from repeated experience, is one of them.

The radical cure of the hydrocele by ſeton is an old operation, lately introduced into practice by a gentleman of great eſtimation in his profeſſion †. He has produced many inſtances of it's good effects: But in all the caſes that I can recollect, and in thoſe he himſelf relates, the ſubſequent ſymptoms run much higher, and the patient's life muſt be ſaid, comparatively ſpeaking, to be in more danger, than where the cauſtick has been uſed. Beſides, from collections of matter formed and retained in the ſack, we are generally under a neceſſity of having recourſe to inciſion; or, in other words, putting in practice the firſt method, by laying open the ſack.

Add to this that the operation is as painful, if not more than that by inciſion;

* Vide Note V.

† Vide Mr. Pott's Treatiſe on the Hydrocele.

on; as this is done in an inſtant; while Mr. Pott employs three inſtruments to introduce the ſeton. The continual contact of ſuch an extraneous ſubſtance, as a ſkein of cotton or ſilk, with ſo delicate a part as the teſticle, is a very unfavourable circumſtance; and if the teſticle ſhould be morbidly enlarged, the worſt conſequences may be juſtly apprehended. Nor will the cure, after all, be certain, as there are inſtances of a relapſe; particularly where the tunica vaginalis has been morbidly thickened, which is the more general caſe: For here, a coaleſcence between the tunica vaginalis and albuginea, cauſed by the inflammation excited, muſt not be expected; as it is a circumſtance very rare, except in very young ſubjects, that a radical cure of an hydrocele has been effected ſimply by an inflammation, without any ſuppuration having been formed in the ſack.

To ſuppoſe that, in ancient hydroceles, where the ſack of the tunica vaginalis will often contain from a pint to near a quart of water, and is ſome lines thickened, it will contract, and uniformly adhere, by the firſt intention, as we may ſay, round a body not much bigger than a walnut, although Mr. Pott

Pott aſſerts it happens, in his method of cure, is what, I believe, he will never demonſtratively aſcertain.

I WILL paſs over any detail of the radical cure of the hydrocele, by means of injections into the ſack, after the water is drawn off; or by introducing a tent, &c. * The ſymptoms in conſequence of thoſe operations are, in general, equally acute and dangerous, as thoſe attending the method by inciſion, or ſeton.

IT only remains that we relate from experience, how far the method of cure by cauſtick has been found more certain, infinitely leſs painful; and the patient's life never, as far as I have ſeen, in any danger.

* For any further information, vide Sharp, Warner, and Monro, who have reſpectively treated on this ſubject.

SECT.

SECT. III.

Of the radical Cure of the Hydrocele by Cauſtick.

UNTIL within theſe few years, there were not many ſurgeons, who recommended, any way warmly, the radical cure to their patients: And, from the repreſentations of the conſequences, laid down by the beſt authors *, they had juſt reaſon to be intimidated. Beſides, there were few that would ſubmit to have their ſcrotum ſlit up, and the teſticle expoſed, or a ſtring run through it, for the cure of a diſeaſe, the continuance of which did not immediately endanger life. So that, except ſome accident happened in conſequence of tapping, and an extravaſation of blood was formed in the ſack, which made an inciſion indiſpenſably neceſſary, few ſubmitted to it otherwiſe.

Mr. Pott's judicious treatiſe on this ſubject, in ſome meaſure, gave ſurgeons more confidence

* Vide Sharp, Cheſelden, &c.

confidence in propoſing the radical cure: But, by experience, it was found to be attended with ſo many painful and dangerous conſequences, that it was very far from being generally adopted.

To Mr. Elſe we are indebted for a ſafe eaſy method of cure, comparatively ſpeaking, of this very troubleſome and, ſometimes, dangerous complaint. On reading his eſſay on the radical cure of an hydrocele, by the application of a ſmall cauſtick, I reſolved to put it in practice, the firſt opportunity that preſented. I found no great difficulty to perſuade ſuch as laboured under this diſeaſe, and that I thought were proper ſubjects, to let me apply a ſmall cauſtick.

Before we apply the cauſtick, we ſhould, as far as poſſible, aſcertain the actual ſtate of the parts engaged, and general habit of body of the patient. As the diſeaſe begins, and ſometimes increaſes, by almoſt imperceptible degrees, very often the patient can give but little information, in regard to the ſtate of the teſticle. But if he is otherwiſe in good health, looks well, and has no pain in his back or teſticle, or up the ſpermatick chord; although we cannot ſatisfactorily,

rily, by feeling towards the poſterior and inferior part of the ſcrotum, judge of the ſtate of the teſticle, on account of the diſtenſion of the tunica vaginalis; yet, we have good reaſon to look on the diſeaſe as a local affection, and may apply the cauſtick.

But ſhould the patient be advanced in years, have a leaden ſallow complexion, or labour under any viſceral obſtructions; if the hydrocele was preceded by an enlargement of the teſticle, painful at times; and that he complains of pains in his back; it will be but prudent to content ourſelves with the palliative treatment, at firſt, and lay aſide the radical; at leaſt until thoſe conſtitutional complaints are removed, if the patient ſhould be ſo fortunate.

The ſame attention we ſhould pay to thoſe, who labour under any ſcorbutick or ſcrophulous complaint: And in ſhort, every patient ſhould undergo a preparatory treatment ſuited to his particular temperament; and ſo directed as to prevent the future effects of a neceſſary inflammation and ſuppuration, which muſt take place in parts ſo delicate, from riſing too high; or from being productive of ſo many painful and

dangerous

dangerous conſequences, as the patient would be otherwiſe liable to.

The local attentions we ſhould have are, that, if the hydrocele has been of a long ſtanding, is large, and that the water has been frequently drawn off, we may be ſure that the tunica vaginalis is conſiderably thickened; and it may be prudent to defer the operation, and for the preſent, draw off the water by tapping *; and take the opportunity of applying the cauſtick, when the ſack is not ſo much diſtended. The ſame method we ſhould follow, ſuppoſing the hydrocele large, and that the patient never ſuffered a puncture.

As to the manner of applying the cauſtick, Mr. Elſe's directions are fully ſufficient :‡ But I have always uſed the lapis infernalis, beat up with ſome ſoap, and a proper quantity

* The flat trochar, repreſented in plate I, I preſume will be found infinitely preferable to any other inſtrument for performing this operation.

‡ In all caſes where the integuments are not much thickened, particularly in young ſubjects, I find that rubbing the lapis infernalis on the part will, in general, be ſufficient, and is much preferable to letting it lie on.

tity of opium. This cauſtick, when rightly managed, never ſpreads farther than is intended: a very deſirable circumſtance. Having applied it, I generally give twenty drops of tincture thebaic in an ounce of cinnamon water immediately after, which renders the action of the cauſtick a great deal leſs painful.

I NEVER found that the cauſtick, though it ſhould lie on for twenty four hours, penetrated farther than the tunica vaginalis, the firſt application.

THE eſchar ſhould be dreſſed with a pledgit, ſpread with ſoft ointment; and the whole ſcrotum wrapped in the flaxſeed pultice, and properly ſuſpended by a well made bag truſs. The dreſſings, pultices, and emollient fomentations ſhould be continued. The eſchar may be removed in three or four days, when a ſuppuration is formed round the edges, and it becomes looſe.

IF we find that, from the thickneſs of the teguments, the cauſtick has not penetrated, we muſt repeat it, with the ſame precautions; and when the tunica vaginalis appears, if thin, we may puncture it, or by touching it

it with the lapis infernalis, it will ſlough away: A ſuppuration, generally abundant, if the hydrocele was large, takes place, and ſome ſloughs are flung off from time to time. The fomentations, pultice, &c. ſhould be continued; the patient's bowels be kept free by any gentle laxative; and he ſhould have a decoction of the bark to take through the day. All enlargement gradually ſubſides, and the ſuppuration leſſens.

The patient need not be conſtantly confined to bed, during the treatment; but may be permitted to dreſs himſelf, and get up for ſome hours through the day, when the ſwelling has for the moſt part ſubſided, and the diſcharge is much leſſened, which often happens at the end of a fortnight. After this, the diſcharge becomes trifling; the hole looks florid; the ſcrotum contracts to near its original ſize; a cicatrix is ſoon after formed, which adheres to the teſticle, and remains indented. The whole proceſs may take up from four to ſix weeks, and the patient is recompenſed by the radical cure of a troubleſome complaint.

Having ſhewn the method, that I have experienced moſt effectual, for the radical removal

removal of an hydrocele it only remains that we juſt mention, in what caſes we ought not to propoſe it to the patient, but adviſe him to be content with having the water occaſionaly evacuated by tapping.

SECT. IV.

Caſes, in which the radical Cure of the Hydrocele ſhould not be undertaken.

IN all caſes, where the hydrocele is the conſequence of a ſcirrhous enlargement of the teſticle; that it is painful at times; the ſpermatick chord too full, and knotty; that the patient has a ſickly yellow caſt, and is troubled, on the change of weather, with flying rheumatick pains: In all thoſe caſes, the cauſtick ſhould never be propoſed, nor even the puncture, except where the ſack is vaſtly diſtended, unleſs we inform the patient that he will, in very unfavourable circumſtances, be obliged in all probability to ſubmit to caſtration.

Men in an advanced period of life, ſickly, and troubled with aſthmatick affections, or labouring under viſceral obſtructions *, &c. who have an hydrocele, ſhould, in general, be contented with having the water occaſionally evacuated by tapping: And as, in many of thoſe caſes, the ſack takes a conſiderable time to fill, the diſorder is rendered more eaſy to be borne; nor in ſuch does it curtail the patient's life.

In all caſes, where a ſcirrhous or cancerous diſpoſition of the teſticle is preſumed to exiſt, the cauſtick muſt be laid aſide; and if the patient is reſolved to get rid of the diſeaſe, and that we think it prudent, we muſt, in thoſe caſes, adopt the method by inciſion: For, if our ſuſpicions are real, there will be a neceſſity for immediately removing the teſticle. And in ſhort, the treatment of an hydrocele, under different circumſtances, requires in the ſurgeon a great deal of diſcernment and prudence.

* Vide Note VI.

SECT.

SECT. V.

Of the Hydrocele of the Tunica vaginalis of the ſpermatic Chord, with the Method of treating it.

IT does, not unfrequently, happen that water is collected along the tragit of the cellular membrane, that envelops the ſpermatick chord. This is totally diſtinct from the hydrocele of the tunica vaginalis teſtis, and is not very difficult to diſtinguiſh, except from an hernia. However, the fluctuation, and the impoſſibility of reducing the tumour into the belly, pretty well characterize it. Should there be any doubt, if we delay, the fluctuation will, in general, be rendered unequivocal.

FOR the cure of this complaint, we muſt give the preference to inciſion: For, in this caſe, no tenſe membranous cavity is laid open, but what is formed of the looſe cellular membrane, and the thin muſcular fibres that form the cremaſter; nor do we expoſe any ſenſible part to the air, or contact of dreſſings.

I HAVE never experienced the fatal ſymptoms, that Mr. Pott * relates in two caſes: He ſeems more apprehenſive of making an inciſion in thoſe caſes, than in that of the tunica vaginalis teſtis. No doubt that, in hydropick ſubjects, inciſions of far leſs extent will mortify, or become dry, and the patient ſink under the general ſymptoms of his diſeaſe, and the wound never ſuppurate: But thoſe are caſes which preclude all ſuch operations. But, where the patient had no conſtitutional affections, the operation, as far as I have experienced, ſucceeded happily, without being attended with any dangerous ſymptoms: And in one caſe, although complicated with ſome ſingular ſymptoms, and a train of hydatides protruded from the abdomen, and the patient had worms, yet he recovered very well †. In every caſe of this kind, the inciſion ſhould be made with the ſame precaution, as in the operation for the rupture.

THE parts being ſhaved, if the tumour is large, the integuments ſhould be firſt divided by a longitudinal inciſion, for about three

* Vide his Treatiſe on the Hydrocele.

† Vide Note VII.

three inches, or ſo: In ſhort, the inciſion ſhould be in proportion to the extent of the tumour. After the integuments are divided, the ſack will appear, and the fluctuation be rendered more ſenſible. We may make, at the inferior part, in the ſame cautious manner as in opening an hernial ſack, a ſmall perforation. When the evacuation of the water gives us a certainty of the diſeaſe, we muſt introduce the probe-pointed biſtory, and lay open the ſack to the full extent of the inciſion of the integuments. Soft dry lint laid in the wound, a plaſter and proper compreſſes over, with a flannel tailed bandage, complete the dreſſings.

A DOUBLE flannel, wrung out of oil and camphorated brandy, ſhould be applied to the patient's belly, and occaſionally renewed; an opiate given at night; his bowels always kept free; and the antiphlogiſtick regimen enjoined.

THE treatment after requires no particular attention, as the wound generally ſuppurates kindly, and a cicatrix ſoon after is formed. If pain, tenſion, or any unuſual inflammatory ſymptoms, ſhould appear in the courſe of the treatment, they muſt be

combated by the general antiphlogiſticks: And after the ſuppuration is eſtabliſhed, the decoction of the bark ſhould be taken by the patient through the day.

SECT. VI.

Of the different Enlargements of the Teſticle, their Diſtinctions and Method of Treatment.

THE ſpirit of enquiry, and freedom of expoſing the errors of our predeceſſors, that ſo eminently characterize the preſent age, would, in ſurgery, be of the utmoſt utility to mankind, had ſome of our moſt reſpectable modern authors more authentically aſcertained, by diſſections, the erroneous opinions they meant to explode.

THE deſcription of a ſarcocele given by all ſurgeons, until within theſe few years, is deemed to be very erroneous, by the unanimous conſent of the ſurgeons of this day: They alledge that our predeceſſors in ſcience miſtook a ſcirrhous teſticle, for a fungous or fleſhy excreſcence, growing on the ſurface of the teſticle: A caſe which, they ſay, never

never happens: Whereas that of the ſcirrhous teſticle often occurs.

So capital a miſtake muſt have been of the utmoſt bad conſequence in practice: For, thoſe who held, that a fleſhy or fungous excreſcence could ariſe on the ſurface of the teſticle, without impairing or ſpoiling the integrity of its vaſcular texture, ſtrove to conſume the excreſcence by ſuppuration, and preſerve the teſticle: And many inſtances of the ſucceſs of this practice are recorded in their ſeveral works.

All the modern authors, that I have read, totally explode this opinion; and inſiſt that no ſuch fungous excreſcences ever ariſe on the ſurface of the teſticle, but in conſequence of the cancerous ſtate of this gland; that all miſtaken enlargements proceed, either from a morbid ſtate of the vaſcular body of the teſticle, or the epididymis; and are to be looked on as ſuch: Therefore, all applications to conſume excreſcences, which cannot exiſt, and the vaſcular ſtructure of the teſticle remain unchanged, muſt be highly detrimental; as we muſt, by this method, precipitate, or convert, occult cancers into open ones; and often, by this fruitleſs and

painful delay, we give both time and occaſion to the ſpermatic chord becoming ſo enlarged, as to preclude the patient from all chance of being relieved, by the operation of caſtration, the only reſource in thoſe caſes; and reſign him a victim to one of the moſt painful and loathſome diſeaſes.

As it is almoſt impoſſible, in a conſiderable enlargement of the teſticle, preciſely to determine its true nature, we have every reaſon to preſume, that many real ſcirrhuſes, of the body of the teſticle, have been miſtaken for fleſhy excreſcences grown on it; and much danger has from thence reſulted to the patient. At the ſame time, diſſection has evidently proved, that ſuch excreſcences do exiſt, and the vaſcular texture of the teſticle remain unchanged: And that many ſuch caſes do occur, which have been deemed a real ſchirrus of the body of the teſticle, I have no doubt of; and where caſtration has been performed: an operation that, in ſome of thoſe caſes, might be diſpenſed with.

I WILL briefly conſider all enlargements of the teſticle, under three different points of view.

FIRST,

FIRST, a ſcirrhous enlargement of the epididymis.

SECONDLY, a ſcirrhous enlargement of the body, or vaſcular texture, of the teſticle.

THIRDLY, fungous excreſcences of the tunica albuginea teſtis.

A VENEREAL ſwelled teſticle is but ſeldom ſo completely diſcuſſed, but what the epididymis will remain more or leſs enlarged and knotty. This complaint, if not meddled too much with, is ſeldom or ever productive of any alarming conſequence. But, in hypochondriack patients, it becomes a matter of more ſerious conſideration: They, for the moſt part, are conſtantly feeling the part; anxiouſly thinking of any poſſible bad event; continually making ſome application or another, generally of the mercurial kind; by which means it often occurs, that inconſiderable complaints of this ſort, which would have never proved troubleſome, or of any moment, become enlarged, painful, and ſometimes, although but very ſeldom, cancerous.

In all the caſes of this kind I have ſeen, there never was, in one of them, any neceſſity of performing caſtration. Quieting the patient's mind, by aſſuring him that the complaint is of no conſequence, if let alone; cautioning him againſt handling the part; and ſuſpending the teſticles in a bag truſs; except the enlargement is conſiderable, will fulfil every intention; as, by time, the complaint either decreaſes much, or becomes ſo familiar as to be forgot by the patient.

However, where the epididymis has been conſiderably enlarged, I have frequently, with great advantage, ordered a courſe of the mercurial pill, with caſtile ſoap and extract of hemlock *, and a decoction of ſarſaparilla: The teſticle to be fomented with a ſtrong decoction of hemlock, three or four times a day, and covered with the ſoap and hemlock plaſter. By thoſe means, I have frequently reduced very conſiderable and alarming indurated enlargements of the epididymis.

When the glandular part of the teſticle becomes

* A drachm of each, formed into thirty-ſix pills, two to be taken night and morning.

becomes enlarged and ſcirrhous, our utmoſt attention ſhould be directed to the patient's conſtitution; the apparent cauſe of the complaint; and the actual ſtate of the parts engaged: For, a due conſideration of thoſe objects will point out to us the proper method of treating ſuch caſes.

As the teſticles are liable to various accidental injuries, and inflammations in conſequence, it ſometimes occurs, that we meet young men, healthy, and of vigourous conſtitutions, who have an indurated enlargement of the teſticle: In all thoſe caſes, the diſeaſe is purely local, and the conſtitution unaltered.

If the enlargement is recent, and is the effect of an inflammation cauſed by an accident, as a kick or fall, &c. in thoſe caſes, we ſhould apply fomentations and pultices of hemlock; and put the patient on a courſe of the extract, purging him occaſionally: And although all the hardneſs ſhould not diſappear, after ſome time; yet, by leaving it to time, and having the teſticle ſuſpended by a bag truſs, it imperceptibly diſappears. Even although the diſeaſe ſhould be of a long ſtanding, and eludes the efficacy of de-

obſtruent

obſtruent medicines; yet while the diſeaſe is not painful, and that neither the looks or health are affected, I would never propoſe caſtration: For, by time, the human conſtitution undergoes various changes, which may be favourable to naturally diſperſing or leſſening thoſe enlargements, and to the adminiſtration of deobſtruents. And if the mind of the patient be kept eaſy, and not filled with apprehenſions of a cancer, the diſeaſe may lie for ever dormant; nor can it, in the ſtate we have mentioned, ever injure, or taint the ſyſtem with any cancerous virus.

But it often happens that the teſticle becomes really ſcirrhous, it's ſurface rugged, and painful to the touch: In the increaſe of the diſeaſe, the patient's general ſtate of health begins to be affected; he gradually loſes his healthy look; his countenance appears ſallow; his appetite and ſleep become impaired; on the change of weather, he is affected with flying pains, particularly in the teſticle and back. In this ſituation, if the diſeaſe does not give way to a prudent courſe of the extract of hemlock, we muſt have recourſe to a very diſagreeable operation. But previous to the propoſing caſtration; it will be

be neceſſary to be particularly informed of the actual ſtate of the ſurrounding parts.

In every patient affected with a ſcirrhus, which has a cancerous tendency, however local the diſeaſe may appear, and that it has originated from an accident, yet, a cancerous virus in the general ſyſtem is ſtrongly to be ſuſpected.

I have, on ſeveral occaſions, frequently experienced the development of ſome latent conſtitutional virus, from apparently inconſiderable accidents.

How often does it occur in practice to ſee patients, that have been deemed in perfect health, and in the prime of life, if they receive an accident attended with much confinement, inflammation, ſuppuration, or where the general ſyſtem is much engaged, that, in the progreſs of the treatment of ſuch caſes, we find a ſcorbutick, ſcrofulous, cancerous, or a degenerated venereal virus, unexpectedly developed?

I have met ſome inſtances, where a patient had been long confined, as for a broken leg, that painful, characterized, ſcrofulous

fulous ſwellings of the knee have been the conſequence: Juſt ſo in cancerous diſpoſitions: a ſlight hurt, or expoſing an irritable part, as in ſome ſuppurated buboes, the virus is determined to that point, and a cancerous ulcer is the conſequence.

For thoſe reaſons, I am much inclined to believe that cancers are ſeldom or never local; nor will the ſucceſs, that frequently attends extirpation, prove the contrary *. For, it is not in every perſon, whoſe general ſyſtem is tainted with a cancerous virus, we are to expect that a cancerous ulcer muſt inevitably ſucceed: For many of theſe, but for ſome trifling accident, might paſs through life without it's being perceived, except the virus be predominantly active.

Of all thoſe patients under forty, that I have had occaſion to ſee, labouring under cancerous diſeaſes, the greater number, by far, looked for the cauſe of their complaint in ſome trifling accident: Whereas, in the more advanced periods of life, when the vigour of the conſtitution is naturally broken down;

* Vide Note VIII.

down; when the ſolids become ſtiff and rigid; and the fluids tend more ſtrongly to an acrid or alkaleſcent ſtate; in ſuch patients, we find the cancerous virus fix on different parts, without the patient's meeting any previous accident.

It is of the utmoſt conſequence to the patient, that the Surgeon ſhould have a proper attention to the general ſtate of his health: For, thoſe, who look on a cancer to be a local diſeaſe, after they have extirpated it, think every thing done for the patient; whereas there are many neceſſary attentions requiſite ever after, to ſecure him from the danger of a relapſe.

When the teſticle is affected with a real ſcirrhus, which, from the ſymptoms attending, we have every reaſon to believe will terminate in a cancer, we ſhould, if the ſurrounding parts are in ſuch a ſtate as will juſtify it, propoſe caſtration to the patient, as the only reſource left for his relief. The objections to this operation are:

First. An enlarged, ſcirrhous, knotty, painful ſtate of the ſpermatick chord. This certainly precludes all operation: For, in general,

general, this morbid diſpoſition extends up into the abdomen, the whole length of the ſpermatick proceſs; and it would not, in this caſe, relieve the patient, to have only one part of the diſeaſe, viz. the teſticle, extirpated; when we ſhould be obliged to leave the ſpermatick proceſs in a ſcirrhous ſtate; which the irritation, conſequent on the operation, would ſoon precipitate into a cancerous one, and miſerably deſtroy the patient. But, all enlargements of the ſpermatick chord are not of this nature: For, if the proceſs, although enlarged, ſhould have a ſoft feel, and not painful to the touch; and the patient not complain much of pains in his back, or cholick ones; it will not be an objection to the operation. For, there ſeldom can be a conſiderable enlargement of the teſticle, without the ſpermatick chord being increaſed in ſize, more or leſs; and if it proceeds only from a varicous ſtate of it's veſſels, and a thickening of the cellular membrane, the operation may ſucceed very well: For, by the ſuppuration, all this diſtenſion generally ſubſides.

Secondly. If the inguinal glands are enlarged, and that we have reaſon to apprehend, that ſome of the abdominal viſcera

are

are in the ſame ſtate, the operation ſhould not be performed.

THIRDLY. If, from the patient's looks, and general ſtate of his health, we have every reaſon to be convinced the cancerous virus is diffuſed throughout the general ſyſtem; and that the patient is advanced in years; the operation will ſeldom be of any permanent advantage.

WHEN it is determined to extirpate a teſticle, the method of performing the operation is, either by a ſimple inciſion, or by ſuch as that we may leave an oval piece of the integuments on the teſticle: The firſt may ſerve well enough, where the teſticle is but ſmall; but where it is large, or, which is often the caſe, that the integuments adhere to the anterior part of the teſticle, the latter method muſt be adopted: And, in general, in every caſe, as it creates very little, if any, additional pain; that it both expedites and facilitates the extraction of the teſticle, and is of advantage in the future dreſſing; it will, I preſume, be found on experience to be the more eligible.

FOR

For either method, the patient is placed, conveniently for the operator, in his bed; or on a table, over the edge of which his legs may hang: If he is very timid or weak, we may prefer the bed. The parts being clean ſhaved, the operator, ſtanding between the patient's legs, graſps the teſticle with one hand, ſo as to make the ſkin tenſe, while he begins his inciſion *, and at once extends it, from half an inch above the abdominal ring, to the bottom of the ſcrotum: He next lays the ſpermatick chord bare. And here it will be neceſſary to conſider what will be the moſt eligible method to ſtop the hemorrhage, which will ſucceed the diviſion of the chord.

When the teſticle is large, the veſſels of the ſpermatick chord, both veins and arteries, become generally more or leſs enlarged. The two methods in uſe are, the ligature, and agarick with preſſure. If we employ the ligature, we expeditiouſly ſtop the hemorrhage,

* Previous to making the inciſion, it has been a practice with ſome to thruſt a trochar or a lancet into the teſticle, in order to be ſure that no collection of matter or water ſhould be miſtaken for a ſcirrhus: If the caſe be doubtful, a circumſtance which rarely occurs, it may be done; otherwiſe, as it is attended with exquiſite pain, and of no uſe, it ſhould be totally rejected.

rhage, and are ſecure of it's not returning: In doing this, ſome include the whole chord; while others * carefully diſſect the artery from the cellular membrane, and only include it alone in the ligature.

THOSE who adopt the latter method, and ſo ſtrongly enforce this practice, alledge, that by including the whole chord, we create a great deal of unneceſſary pain to the patient; add much to the hazard of the operation; and that it muſt be deemed totally unneceſſary. Thoſe who include the whole chord, do it in order to expedite the operation; and on the preſumption that no danger can ariſe from this practice.

I THINK a medium can be taken between thoſe two opinions. Where the chord is large, it unneceſſarily prolongs the operation to be too circumſpect in diſſecting the artery clear from the other parts; nor is it eaſy to do. On the contrary, to include the whole chord is imprudent; although I have ſeen it often done: And notwithſtanding the patient, in this caſe, always complains in tying the ligature; yet I never ſaw any

* White, Gooch and Bromfield.

alarming ſymptoms, that I could impute to this cauſe.

My method is this: As ſoon as I lay the chord ſufficiently bare, I take it between my finger and thumb, and cut it off about an inch from the teſticle, if no enlargement, &c. prevents me. I then let the artery go, ſo as to ſee it plainly. Then, with a crooked needle, and flat waxed ligature, I take it up, with only ſo much of the ſurrounding parts, as will ſecure the ligature from ſlipping off. By this means, I eaſily avoid the inconvenience that may attend the other method.

Those, who uſe the agarick and preſſure, think they ſave the patient much pain by that means: And a celebrated profeſſor in Paris *, who was deemed very ſucceſsful in this operation, imputed it to his diſpenſing with the uſe of the needle. But where this method was practiſed, I have ſeen the patient ſuffer much more, than he would by the ligature;

* Dr. Petit, who, I ſuppoſe, adopted this method as it was ſtrongly recommended by Mr. Petit, the Surgeon, who ſays he has obſerved matter to form in the vaginal proceſs, above the ring, which he imputes to including the entire chord in the ligature.

ligature; beſides the fright of an hemorrhage ſucceeding the operation; and being obliged to take off the dreſſing, when the patient, ſhould expect ſome reſt, after what he ſuffered. And after all, the ligature muſt often be made uſe of, ſo that I think it is better do that at firſt, which we may be obliged to do at laſt.

When the ſpermatick chord is ſecured, we have nothing to impede our cautiouſly diſſecting, and detaching the teſticle, from the cellular membrane that ſurrounds it. A great deal has been ſaid againſt the practice, which ſome authors recommend to operators, of detaching, with their fingers, the teſticle from the looſe cellular membrane, and not uſing the knife more. There is more ſaid of this than it merits: No prudent operator will rudely tear out the teſticle; and none but a trifling one will make unneceſſary uſe of the knife, where the finger can, without any ſort of violence, effectually anſwer the ſame purpoſe, without running the riſk of unneceſſarily dividing the artery of the ſeptum ſcroti. When the teſticle is extracted, if any artery is opened, that we may expect would give us trouble, it will be proper to take it up.

If the teſticle to be extracted is very large, it will be beſt if the operator leaves an oval piece of the integuments on the teſticle. For this purpoſe, having begun his inciſion above the ring, as in the firſt caſe, when he has come on the teſticle, let him proceed, ſo as to leave an oval piece of the integuments on the teſticle, proportioned to it's bulk. He then lays bare the chord; and having ſecured the ſpermatick artery, he will eaſily detach the teſticle, at each ſide of the oval piece.

The operation being over, ſome looſe dry lint may be ſoftly laid in the wound; a large pledgit ſpread with the ſpermaceti ointment over; and over all, a plaſter, compreſs, &c. ſecured by a flannel tailed bandage. A large doubled piece of flannel, wrung out of ſome warm oil and camphorated brandy, ſhould be applied to the abdomen, and occaſionally renewed.

Some time after the operation, the patient ſhould take the antimonial paregorick *; and if he complains much of pains and twitching in the abdomen, it may be repeated at due intervals,

* Twenty drops of tincture thebaic, and fifteen of antimonial wine, in an ounce of cinnamon water.

intervals, until he becomes quiet. I generally order him a ſpoonful of the oil of ſweet almonds, to be taken two or three times a day. He ſhould have a pleaſant ſaline julep, two ſpoonfuls to be taken every three hours; his bowels kept free by clyſters; and the antiphlogiſtick regimen ſtrictly enjoined until the ſuppuration is completed. The dreſſings ſhould be of the lighteſt kind: Pledgits ſpread with ſpermaceti ointment will fulfil every intention. The firſt dreſſings ſhould not be removed, until the ſuppuration eaſily detaches them.

When the wound is in full ſuppuration, a decoction of the bark ſhould be given through the day; and a gentle laxative, whenever the patient is coſtive.

When the wound is near cicatrization, in thoſe who may be ſuſpected to have any cancerous virus in their ſyſtem, I always open one or two iſſues, and enjoin them to have a conſtant attention to their regimen, &c. If this is neglected, they often derive but very little advantage from the operation; as the cancerous virus ſoon after ſeizes on ſome other part, perhaps nor ſo immediately in the power of ſurgery to relieve.

I ſhall conclude this eſſay with ſome obſervations on fungous excreſcences of the tunica albuginea teſtis.

SECT. VII.

Of fungous Excreſcences of the Tunica albuginea Teſtis.

THE convoluted vaſcular ſubſtance of the teſticle is inveſted by the tunica albuginea, a ſmooth, firm, white membrane. I have frequently obſerved, in even a ſound ſtate of the teſticle, ſmall red tubercles, like a currant, on its ſurface. In a morbid ſtate, thoſe may increaſe, and become funguſes, or large excreſcences. However this may be, we abſolutely find membranes very near as thin give riſe to large excreſcences, without the parts, which they immediately inveſt, being morbidly affected. What large fungous excreſcences ariſe from the ſurface of the dura matter, which, in time, even break through the cranium, and appear externally?

ternally? Various funguſes ariſe from the membranes of the eye; and we muſt not imagine the tunica albuginea particularly exempt from being ſo diſeaſed: That it is not, I will produce undoubted proof.

I MUST confeſs that, until within theſe two years, I looked on the more ancient idea of a ſarcocele to be entirely hypothetical; and that no fungus or excreſcence could ariſe on the ſurface of the teſticle, without its vaſcular texture being engaged: And therefore, I thought the practice recommended of conſuming thoſe excreſcences by ſuppuration, and preſerving the teſticle at the ſame time, founded in abſurdity, and productive of the worſt conſequence to the patient.

IT happened, that, about two years ago, I extirpated a teſticle, which I thought to be in a cancerous ſtate *. On examining it after, it appeared uniformly enlarged, and bigger than a man's fiſt. As there was a hollow ulcer, from which a large diſcharge proceeded, it induced me to divide the whole maſs into two. I was very much ſurprized to

* Vide note IX.

to find, that the diſeaſe, which I took at firſt for a cancerous enlargement of the teſticle, conſiſted of a hard ſteatomatous ſort of excreſcence, which aroſe from the tunica albuginea; and the vaſcular texture of the teſticle, incaſed in this tumour, ſeemed perfectly ſound, and in its natural ſtate.

Not long after, I had another caſe of the ſame kind, but much ſmaller, plainly of the ſteatomatous kind; and the vaſcular ſtructure of the teſticle was not at all engaged.

Since this, I have met with an hydrocele attended with ſuch enlargements; and where the ſuppuration, in conſequence of the application of the cauſtick for the radical cure, ſeemed to have the beſt effect, in reducing thoſe enlargements to a ſize, that might eaſily be borne with; and from which there is no great reaſon to apprehend any future bad event *.

For the cure of hydroceles, attended with ſuch excreſcences of the albuginea, the cauſtick ſeems particularly adapted; as it may fulfil

* Vide note X.

fulfil two very deſirable intentions: the radically curing the hydrocele, and leſſening thoſe enlargements, which ſeem to melt away in the courſe of the ſuppuration.

It may be aſked, can thoſe excreſcences of the tunica albuginea be ſo far characteriſed, before any operation takes place, as to be diſtinguiſhed from a real ſcirrhus, or cancerous diſpoſition of the teſticle. I believe an attentive obſerver will gain much information in this, by paying a proper attention to the patient's general habit of body; whether there be any reaſon to ſuſpect him tainted with a cancerous virus; by handling the enlargement of the teſticle; if it is not painful to the touch; and the patient does not complain of thoſe lancelating pains at times, in the part, or in his back, which we find he does where the teſticle is cancerous; and that his venereal deſires and ſeminal emiſſions are not leſſened; for, where the vaſcular texture of the teſticle is engaged, they muſt: I never met a caſe of this kind, but what was attended with an hydrocele. Perhaps ſome future opportunities may enable us to give more diſtinctive marks of this affection, which the caſes we have produced will ſufficiently authenticate.

NOTES.

NOTE I. p. 6.

THE following caſe is an inſtance where the hydrocele returned, after the water had been twice evacuated, in a child of five months old.

CASE I.

September, 1779.

AN healthy ſtrong child was born with a large hydrocele of the left ſide. Ten days after, the water was drawn off by a puncture with a lancet. In ſix weeks the operation was obliged to be repeated, as the tunica vaginalis teſtis was as much diſtended as at firſt.

WHEN the child was five months old, as the parents were very anxious to have the complaint radically removed, the inferior and

anterior part of the ſcrotum was touched with the lapis infernalis, as already directed, and the ſcrotum wrapped in the flax-ſeed pultice. The child ſuffered very little uneaſineſs, and never was a minute in any danger. The tunica vaginals was bare in about ten days, and then burſt. A ſuppuration ſucceeded, and the diſcharge continued for about ten days, when it gradually leſſened. An indented cicatrix, which adhered to the teſticle, was formed in four weeks, and the child was radically cured of the hydrocele.

NOTE II. page 8.

CASE II.

April, 1779

A CHILD, of four years old, had been generally healthy; but ſubject to eruptions, that broke out, from time to time, all over her head, and from which there was a conſtant diſcharge. This, by ſome application, was dried up rather ſuddenly. Some time after, ſhe was ſeized with a violent pain, as it ſeemed, in her bowels; coſtiveneſs

tiveneſs, and conſtant crying; the pupils of her eyes dilated: It was very hard to procure ſtools, Bliſters were applied, but ſhe died in the courſe of a week.

DISSECTION.

ON opening her head, and ſhaving off the ſuperior lobes of the brain, the centrum ovale appeared vaſtly elevated and convex; which was occaſioned by more than half a pint of water, contained in the ventricles.

I SAW ſeveral children this year with an hydrocephalus internus. Their complaints were generally miſtaken for worms, or meſenteric hecticks, &c. except in ſome chronick caſes, where the head was vaſtly enlarged. An inability to bear the light, dilatation of the pupils, and irregular fever, are the characteriſticks of the diſeaſe; and generally, a a day or two before they die, they ſuddenly become ſenſeleſs, and lie in a ſort of continued ſtupor.

WHEN the bones of the cranium eaſily yield to the diſtenſion of the water, the head ſometimes

ſometimes is amazingly enlarged, and the diſeaſe generally becomes chronick; as we find in thoſe children, whoſe heads continue gradually to increaſe, almoſt from the time they were born. But when this diſeaſe happens to children of three or four years old, or upwards, we find it, in general, of the acute kind; as the bones of the cranium are more capable of reſiſting the diſtenſion of the water, and the brain is more immediately injured in its functions by it.

NOTE III. p. 12.

THE following caſe will ſufficiently illuſtrate the practice recommended, and it might be deemed rather too prolix to add more.

CASE III.

November, 1779.

AN healthy boy, between three and four years of age, had an hydrocele of the left ſide, for about three months before I ſaw him. On puncturing it with a lancet, about four ounces of water were evacuated. It filled again, in about three weeks after. I then

rubbed the anterior and inferior part, to about half the breadth of ſixpence, with lapis infernalis, ſo as to form an eſchar, and after applied the flaxſeed pultice. This was repeated occaſionally until the tunica vaginalis appeared diſtended with the water. I ſlightly rubbed that part until it ſloughed away, and the water drained off. The ſcrotum and teſtis, that ſide, were inflamed and painful up to the ring. The pultice was continued, and the child purged occaſionally. A ſuppuration ſucceded, but I did not perceive any ſloughs from the tunica vaginalis. The inflammation ſubſided, and the ſuppuration leſſened gradually, and a radical cure was completed in about four weeks. The cicatrix remained indented, and griped to the teſticle. The child never was in the leaſt danger, although he was, by no means, taken the proper care of by his parents.

NOTE IV. page 20.

THE following caſe is an inſtance of an hydrocele returning, after the patient underwent the radical method of cure recommended by Douglas.

CASE

CASE IV.

May, 1779.

A MAN, aged thirty, conſulted me on an hydrocele, which, he ſaid, he had been cut for, nine months before, but without effect. I examined the ſcrotum, and found that an oval piece had been removed: The cicatrix adhered to the teſtis, but water collected at each ſide. I adviſed him to let the cauſtick be applied, but he would not conſent. I was after informed, that the operation had been performed according to Douglas's method, and as much as poſſible of the tunica vaginalis taken away: the whole proceſs proving extremely painful and tedious; which frightened the man from undergoing any more radical cures.

NOTE V. page 22.

CASE V.

November, 1771.

A YOUNG man, an apothecary, whom I uſed occaſionally to tap for an hydrocele,

drocele, which he laboured under for ſome years, ventured to perform the operation himſelf, by puncturing it with a lancet. The next day, he found the ſcrotum rather fuller than before the operation.

On the third day, he ſent for me. I found him in great pain, and full of apprehenſions of it's proving fatal. On examining the ſcrotum, it appeared monſtrouſly diſtended, and of a duſky black colour; which made him imagine the part gangrened. But, on aſſuring him that it was a general attendant on thoſe caſes, and proceeded from an extravaſation of blood, he became more ſettled, and readily conſented to my laying open the ſack; which I immediately performed, extending the inciſion the whole length of the tumour. I diſcharged a great quantity of blood, ſome fluid, and ſome clotted. The teſticle was not to be ſeen, nor the inſide of the ſack, being covered with the extravaſated blood.

The ſubſequent ſymptoms were extremely mild. An abundant ſuppuration ſucceeded; the parts became clear; a cicatrix was formed in about two months; and the patient

ent was radically cured, and remains ſo, it being now eight years ago.

NOTE VI. page 32.

THE following is an inſtance of the good effects of internal medicines in thoſe caſes, for preventing the return of an hydrocele after tapping.

CASE VI.

November 1779.

A MAN, aged forty-five, had, for ſome months before he applied to me, both teſticles much enlarged, and knotty tumours up the ſpermatick chord. The right was moſt engaged, and an obſcure fluctuation was perceptible. It gradually increaſed, and the diſtenſion of the tunica vaginalis was attended with much pain. It was of a globular form, which is rather unuſual. He ſeemed to have his liver affected, and was of a corpulent ſallow habit of body.

I EVACUATED the water of the right ſide; put him on a courſe of deobſtruent pills, chiefly compoſed of ſoap and extract of hem-

lock, &c. had his ſcrotum ſtuped with a decoction of hemlock, and purged him occaſionally. By this method, all hardneſs gradually diſappeared. He had no return of the hydrocele, and enjoyed better health than he did for ſome years before. Here was an hydrocele depending on a conſtitutional affection, and was prevented from returning by internal means.

NOTE VII. p. 34.

CASE VII.

April 8, 1777.

A BOY of ſixteen years of age came into the hoſpital. The account he gave of his caſe was as follows: That, in January, 1776, ſome pimples of a bluiſh caſt appeared on his leg; which turned into a ſcorbutick ſore, that dried up in ſummer; and then his belly began to ſwell, eſpecially in the morning: This was imputed to worms, to which he was extremely ſubject. In February, 1777, the ſore broke out again, attended with ſuch another eruption on his finger; and ſoon after he perceived the right ſide of his ſcrotum much enlarged, on his getting

getting up: This he did not tell, until a few days before he came to the hoſpital.

On examination, there was an uniform ſwelling from the abdominal ring to the bottom of the ſcrotum, that ſide, like a large hernia; but I found a plain fluctuation in it, and made a puncture as in the hydrocele, and evacuated a naggin of water: The ſcrotum was immediately leſſened, but the tunica vaginalis of the ſpermatick chord appeared ſtill full.

Three days after, I perceived a fluctuation in the abdomen; and, by the patient's keeping in bed, the ſwelling on the tragit of the ſpermatic chord diſappeared; but on his getting up, was as large as ever. I now perceived that the water returned into the abdomen, when he lay down, and into the ſpermatick proceſs, when up. I made a longitudinal inciſion on the proceſs, and laid bare what, to appearance, reſembled an hydatide, as big as an egg; which, on puncturing, diſcharged much water: Its coats, although pretty thick, were tranſparent. Introducing my finger, I found the abdominal ring much dilated; and, on preſſing the belly, the water always guſhed out. Near three pints might be

evacuated. He was lightly dreſſed, and a ſoft emollient pultice applied over the ſcrotum, &c.

Some time after, the tunica vaginalis teſtis ſeemed to be much diſtended with water; and, on puncturing, it diſcharged better than a naggin of clear water. The inciſion over the ſpermatick chord digeſted well; but the coats of the hydatide were raiſed up into a hard ſort of fungus, which, by the ſuppuration, gradually ſubſided.

The tunica vaginalis teſtis filling ſoon again, I applied the cauſtick. The ſcrotum was, in conſequence, puffed for ſome days, attended with a ſlight degree of fever, which ſoon ſubſided, and a plentiful ſuppuration ſucceeded. Water came out now and again from the inciſion over the ſpermatick chord. Nothing particular intervened during the treatment; and the boy was diſcharged, about the middle of June, radically cured of an hydrocele of the tunica vaginalis of the ſpermatick chord by inciſion, and that of the tunica vaginalis teſtis by the cauſtick, and I ſent him down to the country. Towards the cloſe of the treatment, I put him on a courſe

courſe of deobſtruent pills, with the bitter infuſion.

NOTE VIII. p. 44.

MR Hill *, in the courſe of thirty years practice, extirpated eighty-eight cancers, and ſays he ſucceeded in ſeventy-five; ſo that only thirteen, out of the whole number, ſuffered a relapſe. From which he concludes, that by far the greater number of cancers are local, occaſioned by ſome accidental hurt; and that, on removing the diſeaſed parts, the conſtitution remains ſound; except when, by long delay, the blood is infected by the ichor of cancerous ulcers abſorbed into the circulation. He therefore ſtrongly adviſes us never to allow a cancer to continue till it be ulcerated.

MR. Monro †, on the contrary, aſſerts, that, of near ſixty cancers, which he had been preſent at the extirpation of, only four patients remained free of the diſeaſe for two years. Three of theſe lucky people had occult

* Vide his Caſes in Surgery, p. 73.

† Vide the Edinburgh Medical Eſſays, vol. V.

occult cancers in the breaſt, and the fourth had an ulcerated cancer of the lip. Upon a relapſe, the diſeaſe was more violent; and made a quicker progreſs than it did in others, on whom no operation had been performed. He propoſes it as a doubt, whether cancerous tumours ever ought to be extirpated; and ſays he has ſeen two inſtances where a cancer has been cured by other means.

WHOEVER will read Mr. Le Dran's * obſervations on this ſubject, will find they very much coincide with thoſe of Mr. Monro: So that it is not eaſy to reconcile with experience the ſuperior ſucceſs that Mr. Hill had in extirpating cancers; as the operation in itſelf is quite ſimple, and requires no particular dexterity. It is much more probable to believe, that many of the caſes he relates were not really cancers.

WE find, in by far the greater number of patients who have ſcirrhous tumours, a conſtitution, that may be ſaid to be particularly diſpoſed to form this diſeaſe, however an accident ſhould, in appearance, ſeem to have given riſe to it: Such are hypochondriack men,

* Vide Memoires de L'Academie Royale de Chirurgie, tom. III.

men, of a ſallow countenance, ſubject to erratick pains, and of an irritable habit of body: And women, who have been irregular, as to the menſtrual diſcharge, hyſterick, and, if married, remain without having any children. Whether, in thoſe, what the ancients called an atra bilis, or the moderns a lentor, or tenacity, in the fluids, ever takes place in the general maſs of humours, which might incline them to ſtagnate in the moſt intricate and vaſcular texture of the glands, is a very doubtful queſtion.

The manner, in which thoſe tumours generally make their appearance, leaves us no room to judge, that they are the effect of a ſlow accumulation of tenacious fluids in the vaſcular texture of the glands: For, on enquiry, we find, by the general account of the patients, that they have appeared ſuddenly; ſo as, in ſome, to make them imagine they were ſtruck with ſomething; and, on applying their hand to the part, they feel a tumour completely formed. This would rather lead us to imagine that a pre-exiſting cancerous virus, determined to a gland, acts as a ſtimulus, to excite ſuch an increaſed contractility in the ſurrounding veſſels, as ſo rapidly to form the tumour.

When this event takes place, from the peculiar intricate vaſcular ſtructure of the glands, which ſo readily admits a ſtagnation of the fluids, and where the general circulation has ſo little influence, we will not be ſurprized that a complete diſcuſſion is ſo difficult to attain.

External ſtimuli, ſuch as proceed from different injuries, as blows, &c. may be ſaid to produce ſimilar effects: But with this difference, that, as the fluids are not vitiated, of courſe our apprehenſions are leſs alarming.

When a ſcirrhous tumour is formed, it often lies for years, without either increaſing or diminiſhing; or if it does, it is in ſo gradual a manner, as that it's progreſs is almoſt imperceptible to the patient, and is attended with little or no pain, except at certain periods: as that which precedes the menſes in women, or hemorrhoides in men; change of weather, or ſome intemperance in point of regimen. In this caſe, it ſeems as if nature, after depoſiting on ſome gland, rids the general maſs of humours of the cancerous virus; until, by a new accumulation, or ſome accidental intemperance, either more or leſs is thrown on the gland, or the ſtagmant humour

mour becomes a principle of irritation. Of this we find the moſt frequent examples in ſcirrhuſes, that appear in thoſe who are in the prime of life, or little removed from thirty. After the firſt effects of the ſcirrhus ſubſide, if inquietude of mind does not prompt the patient to tamper much with the complaint, the ſcirrhus very often lies inoffenſive; until after that period, the ceſſation of the menſes, ſo critical in women, takes place; or, in men, until the natural vigour of their conſtitution gives way.

This period is but too often accelerated, either by intemperance, a ſedentary life, or continued melancholy caſt of mind: As here, the digeſtive and concocting faculties become gradually impaired; and that energy in the circulatory ſyſtem, ſo neceſſary to maintain a due tonus in the ſolids, is of courſe daily decreaſing; the fluids, for want of a proper renovation, by degrees become vitiated, and tainted with different ſpecies of acrimony; which will excite the cancerous ferment, already depoſited in the glands, to action.

But thoſe ſcirrhous tumours, which appear in women on the decline of life, after the menſes have quit them, or who have large hemorrhages

hemorrhages from the uterus at irregular periods; or in men of broken down ſolids; thoſe ſeldom remain long at a ſtand, but increaſe rapidly, and burſt ſoon into cancers.

It is extremely eſſential, to the forming a juſt prognoſtick, to take into conſideration every circumſtance relative to the patient's age and conſtitution; how long the ſcirrhus has been perceived; and the part in which it is ſeated: For, thoſe ſcirrhuſes that ariſe from accidental blows in a glandular part, in young people otherwiſe of good conſtitutions, generally give way, if judiciouſly treated: Whereas in thoſe that may be ſaid to ariſe from a vitiated habit of body, and in patiants who are in the decline of life; and that the tumour daily increaſes, attended with ſhooting pains, &c. we have every reaſon to dread the event: more particularly, if ſo ſituated that the removing it, if neceſſary, will be attended with imminent danger to the patient's life. The glands of the breaſt, axilla, ſubmaxillary, parotid, inguinal, the teſtes, and uterus, are generally thoſe that come more frequently under the ſurgeon's direction.

Perhaps there is no diſeaſe productive of

ſo

ſo much inquietude to the mind, particularly in the female ſex, as ſcirrhous tumours: Every enlarged gland, if ſeated in the breaſt, threatens a cancer, they think: And thoſe melancholy apprehenſions beget that conſtant ſollicitude, we find in thoſe patients, to try every application, that, on enquiry, they may hear, has been productive of any good effect in ſimilar caſes. This diſpoſition of mind, joined to conſtantly feeling, or irritating the tumour by a variety of applications, often changes, into a real ſcirrhus, a tumour, that otherwiſe would have remained inoffenſive, during the patient's life, or would have gradually diſperſed. Of this, there are but too many melancholy examples.

In all thoſe caſes, it will contribute much to the ſucceſs, of whatever method of treatment we may adopt, to uſe every endeavour in our power to baniſh from the patient's mind every idea, that may incline him or her to believe the tumour to be of a cancerous nature: Our real ſentiments we may diſcloſe to the patient's friends.

I have been imperceptibly led into this long digreſſion; but, as it is connected with the

the preſent ſubject, I hope it will not be deemed altogether uſeleſs.

NOTE IX. p. 55.

CASE VIII.

Auguſt, 1777.

A YOUNG man, aged twenty-four, robuſt, and except a ſlight ſort of ſcorbutick eruption, apparently healthy, came to the hoſpital with a large hydrocele. He ſaid it was occaſioned by a ſqueeze a boy gave him in the left teſticle, twelve years before; from which time, the ſwelling gradually increaſed to its preſent ſize. On examining it, I found the teſtis both much enlarged and uneven: and there appeared a good quantity of water in the tunica vaginalis; the ſpermatick proceſs was alſo enlarged, but ſoft. I tapped him, and drew off half a pint of water; and having more particularly examined the teſticle, I perceived it was of a large bulk.

As he was very deſirous to be radically cured, and having no pain in the back, or elſewhere, I adviſed him a previous courſe of

of the Lucan Spa *. This he drank for ſix weeks, and the ſcorbutick eruptions diſappeared. I now took him into the hoſpital, the tumour being nine inches and an half in length, and thirteen round.

I applied the cauſtick, according to Mr. Elſe's directions, on the anterior and rather middle part of the tumour; as the teguments were there thinner, and more prominent: beſides, to apply it more inferiorly was too near the ſcirrhus. In three or four days, the ſloughs ſeparated; and the tunica vaginalis appeared, which was much increaſed in thickneſs: When it ſeemed very thin, I punctured it with a lancet, and diſcharged much water. A ſuppuration took place. He had no pain or tenſion of the belly or back, or fever of any conſequence. After eight days, he got up every day, the ſcrotum being ſupported by a ſuſpenſory, and pulticed. A plentiful diſcharge of matter ſucceeded, and a gradual diminution of the tumour. The eſchar had been ſomething more than the breadth of a ſhilling.

The parts now appeared florid, and were contracting, and an adheſion took place between

* A cold ſulphureous Spa near Dublin.

tween them and the ſcirrhus; but a diſcharge of matter continued from a deep part of the ſcirrhus. Although the hydrocele ſeemed perfectly cured, and the tumour decreaſed conſiderably, yet a large ſcirrhus remained; and a diſcharge of matter from it, through a ſmall aperture, left uncloſed after the cauſtick. The tumour would ſometimes be enlarged prodigiouſly: Therefore, having before tried a mercurial alterative courſe, with a decoction of ſarſaparilla, for near two months, I reſolved to extirpate the teſticle.

Having laid him on a proper table, I made an inciſion, beginning above the abdominal ring; and continued it, ſo as to leave an oval piece of the integuments on the teſtis. I then laid the ſpermatick chord bare, and obſerved its tunica vaginalis greatly increaſed in thickneſs. Having divided it, I took up the artery; and ſo finiſhed the operation, by diſſecting out the teſticle.

On examining the tumour, I found it to conſiſt of a white, ſcirrhous, or hard ſteatomatous, ſort of ſubſtance *; and was in ſize, when ſtripped of the teguments, as large as a man's fiſt. On dividing it in the middle, I found,

* Vide Plate I.

I found, at it's inferior part, the teſticle ſound in every reſpect, and no way increaſed by it. The whole tumour was ſo compact, as to ſeem ſomewhat griſly. In the middle of it's ſuperior part, correſponding to the ſmall aperture, where the cauſtick was applied, there was a cavity, like where an almond had lodged, containing an acrid green matter,

Some hours after the operation, there was an hemorrhage, pretty conſiderable; and I was obliged to take up two ſmall arteries. After this, he had not the leaſt diſagreeable ſymptom, pain of the back or belly, or indeed any fever to ſpeak of; and in about a month, the wound was but a ſimple line, and nearly cicatrized. From his bad habit of body, that ſcorbutick ſcaly eruption again covered his thighs, and made the ſore have a foul appearance near the abdominal ring; but, by the mercurial pill, and decoction of ſarſaparilla, he ſoon got well, and left the hoſpital, in eight weeks from the operation, a robuſt fellow.

CASE

CASE IX.

June, 1778.

A MAN, aged forty-five, three months before he came into the hoſpital, got a ſwelling in the left teſticle; which gradually increaſed, and became hard, and exceedingly painful. On examining it, I found it of the ſize of a large turkey egg, very hard backwards, but a ſmall collection of matter on it's anterior part. He complained of a pain in his back, and had much declined in fleſh: his appetite and ſleep were indifferent. I let out the ſmall collection with a lancet; and, on introducing my finger, found the parts underneath very hard. The edges of the opening, in ſome days, became inflamed and very painful; ſo as, in ſome time, to degenerate into an ill conditioned ulcer.

He was put on a mercurial alterative courſe of calomel, purged off every three days. When the inflammatory diatheſis was over, he got the bark in decoction; and Goulard's lotion and pultice were applied. This not ſucceeding, the hemlock juice was given, to the quantity of four ſpoonfuls a day;

day; he was dreſſed and pulticed with it: And certainly the appearances ſoon changed for the better, and the ulcer became clean, and, in the courſe of ſix weeks, healed; but the ſcirrhous teſticle remained little diminiſhed, attended with acute pains at times.

FINDING every mode ineffectual in diminiſhing the bulk of the teſticle, and fearing things would change for the worſe, I propoſed caſtration, to which he readily agreed.

Having laid him on the operating table, his legs hanging over the end, I made an inciſion above the ring; and continued it, ſo as to leave an oval piece of the integuments on the teſtis. Having cleared the ſpermatick chord, and divided it, I took up the ſpermatick artery. I then ſeparated the teſticle, and diſſected it out. Having dreſſed him, I applied a flannel dipped in oil and ſpirits to his belly, which was to be occaſionally renewed. When he was put to bed, I gave him the antimonial paregorick. He complained all that day of a great pain in his belly and back *. The embrocations were

 repeated,

* This complaint is a frequent attendant on this operation, let the mode of operating be what it may; although it has been imputed to the including the entire chord in the ligature.

repeated, and a ſaline julep, with ſome tincture thebaick and antimonial wine, ordered him.

The next day he was much eaſier: the ſaline julep continued, a paregorick at night, and the embrocations repeated. The third day I dreſſed him; every thing promiſed fair, the ſuppuration commencing. The dreſſings were pledgits ſpread with liniment, ſoftened with two parts of ſpermaceti ointment.

When the ſuppuration was eſtabliſhed, a decoction of the bark was given, with ſome ſal ſodæ ſaturated with lemon juice in it, two drachms to a quart of the decoction. He never had any diſagreeable ſymptom intervene. A ſpoonful of oil of caſtor was given him occaſionally to keep his bowels free; and he was diſcharged the hoſpital well, and rather fat, two months after the operation.

Having divided the tumour lengthways, as in the preceding caſe, I found the vaſcular teſture of the teſticle ſound. The excreſcence, which ſeemed ſteatomatous, and to be here and there in ſuppuration, aroſe from the tunica albuginea backwards; in which

were

were confounded the convolutions of the vas deferens and epididymis. I deſigned to have had a drawing of it, but it was imprudently thrown away. Neither of thoſe tumours ſeemed of the cancerous kind.

NOTE X. page 56.

CASE X.

Auguſt, 1779

A MAN, aged fifty-nine, perceived a ſwelling of his left teſticle, which continued ſlowly to increaſe for five years, unattended with pain. After hard labour, the ſcrotum, which before was in a natural ſtate, became conſiderably diſtended, and continued to increaſe until I ſaw him, which was nine years after the firſt commencement of the complaint. He had the largeſt hydrocele I ever ſaw. Having punctured it with the ſmall flat trochar, which anſwered much better than the common one, or lancet, I drew off more than three pints of water, applied a ſuſpenſory, &c. The teſticle ſeemed much enlarged.

THREE days after, he came to me with the tumour near as large as before he was tapped. I took him into the hoſpital; and after ſtuping and pulticing, and ſuch evacuations as were neceſſary to abate any inflammatory diatheſis, when the pain ſubſided, the tunica vaginalis being vaſtly diſtended, I applied the cauſtick as uſual. The ſcrotum was wrapped in the flax-ſeed pultice, and a paregorick given him.

IT took me up ten days, occaſionally applying a freſh cauſtick during the time, before the tunica vaginalis became thin and bare: For, as this membrane was prodigiouſly increaſed in thickneſs, ſeveral laminæ of it came off, before the water was perceptible. After this, I juſt made a puncture with a lancet. Half a pint of water might have been then evacuated, and it continued to drain off for three days; after which an abundant ſuppuration took place. The parts gradually contracted to about the ſize of a turkey egg.

THE man, during the whole proceſs, ſuffered but very little pain: no fever or inflammatory tenſion attended. When the ſuppuration was eſtabliſhed, pills of extract of hemlock

hemlock, and a decoction of the bark, were given him. A collection of matter appeared, above where the cauſtick was applied, to which I gave exit. After this, the enlargement conſiderably diminiſhed, and the pain abated. He left the hoſpital radically cured of the hydrocele; and although the enlargement has not entirely ſubſided, yet it does not trouble him; and he is perfectly eaſy, free from pain, and able to earn his bread. I lately ſaw him, and find the ſcrotum has an healthy look; the cicatrix is ſunk, and adheres to the enlargement; which I find has ſo diminiſhed by the ſuppuration, that I think there is very little danger of it's ever troubling him *.

I HAVE every reaſon to think that the vaſcular ſtructure of the teſticle was not engaged, any more than in the two preceding caſes; and that the enlargement conſiſted in a fungous excreſcence of the tunica albuginea; which, I believe, has not, in general, a cancerous tendency. Had not the two preceding caſes occurred to me, I certainly would have caſtrated this man, if he would ſubmit to the operation.

* The teſticle at preſent is nearly reduced to it's natural ſize.

SINCE the preceding Tract was written, the following Caſes have occurred to me, and will contribute ſtill farther to illuſtrate the ſubject.

CASE XI.

October, 1780.

A YOUNG man, aged twenty-one, generally healthy, perceived, about ſix months ago, an enlargement of the left teſticle: It was attended with no pain, and gradually increaſed. In the beginning of June laſt, he applied to me. I found, on examination, a large oblong hydrocele: He never had any venereal complaint, nor did he receive any hurt, that might occaſion it. I tapped him, and, as he wiſhed to be radically cured of his complaint, deſired him to come to me, when it would fill again.

Six weeks after, he applied to me: The tunica vaginalis was not as much diſtended as at firſt. I took him into the hoſpital, and, after ordering a doſe of phyſick, I reſolved to paſs the ſeton: No fairer caſe apparently could offer.

The next day, I paſſed the ſeton in Mr. Pott's method. The operation was eaſily and expeditiouſly performed: the patient ſuffered very little pain. After he was put to bed, I gave him twenty drops of thebaic tincture, in ſome cinnamon water. In about three hours, after the operation was performed, he had a violent reaching, and was in great pain, which obliged me to repeat the paregoric.

The following day, I found he paſſed the night indifferently, but the reaching ſubſided, on viewing the teſticle, I found it enlarged, and very painful: the pain extended up the ſpermatick chord. I ordered him to be bled, an emollient clyſter to be injected, and the teſticle to be wrapped in the flax-ſeed pultice: He had a ſaline julep, with ſome tinct. thebaic in it, to take through the day, and a paregoric at night. The teſticle remained ſtill very large and painful: A ſuppuration appeared, in about four days, at both ends of the ſeton. The antiphlogiſtic regimen was continued, and his bowels kept free by caſtor oil, or clyſter.

Although the ſuppuration increaſed, yet the ſwelling of the teſticle was not materially leſſened,

leſſened, the twelfth day, when I began to withdraw the ſeton; and, though I only withdrew two or three threads at a time, I found it gave him conſiderable pain, notwithſtanding I cut off the cruſted part of the ſeton; which I think ſhould always be done, previous to drawing the threads: For, trifling as this caution ſeems to be, if not attended to, the drawing the threads, the ends of which are ſtiff, and hardened with blood, &c. will give a great deal of unneceſſary pain; which will be avoided by cutting them off, at the place where the ſeton is wet with the ſuppuration.

After the ſeton was entirely withdrawn, although the ſwelling kept up, yet the pain ſubſided; and he was able to get up, a few hours in the day. He daily took the decoction of the bark, from the time the ſuppuration ſeemed fully eſtabliſhed, and the paregorick was laid aſide.

Towards the cloſe of the third week, the teſticle became ſuddenly enlarged and painful, and there was a deep fluctuation to be felt, poſteriorly, one ſide of the lower aperture of the ſeton. Three days after, it was ſo evident, that I gave it exit with a lancet. The matter

matter was collected in the tunica vaginalis poſteriorly. After this, all enlargement conſiderably ſubſided, as well as the pain. From the ſuperior aperture of the ſeton, there was a conſiderable diſcharge of matter.

When the diſcharge below began to decreaſe, the beginning of the fifth week, another collection of matter formed, ſuperiorly, towards the ſeptum ſcroti. After I gave this exit, the caſe became very favourable: The ſwelling gradually ſubſided, the ſuppuration diminiſhed, and the patient was diſcharged the hoſpital cured, the eighth week.

Although the ſucceſs of this operation does not correſpond with the caſes Mr. Pott has produced; yet the effects have been very ſimilar in all thoſe caſes, in general, where the ſeton has been paſſed, in which I have been either concerned, or have had an opportunity of hearing from other practitioners.

The operation, and treatment after, is extremely ſimple, and obvious to every practitioner, that no unfavourable ſymptoms can well be imputed to an error in thoſe reſpects: But, I preſume, both reaſon and experience will convince us, that, where we immediate-

ly

ly expoſe the teſticle to the contact of an extraneous body for ten or twelve days, at which time the ſeton ſeems as buried in it, we cannot expect the ſymptoms will be ſo favourable, as in the method by the cauſtick, where thoſe diſadvantages are avoided.

CASE XII.

October, 1780.

AN healthy robuſt man, aged thirty, got a clap, about a year antecedent to the preſent time; after two months he had ſtill a running, and from a drink of cold water, as he imagined, his right teſticle ſwelled. He tried various applications, and it ſubſided; but a fulneſs, which gradually increaſed, was the conſequence. On his applying to me, a year after, I found he had an hydrocele, more globular than is common; and, from the teguments not readily yielding to the diſtenſion of the water, it was painful. I drew off the water with the flat trochar, and ſuſpended the ſcrotum.

IN about three months, he came to me, it being

being full again: He had, beſides, a difficulty in making water, and was in imminent danger, ſince I ſaw him laſt, from a retention of urine. He was willing to undergo the radical cure by cauſtick, and I took him into the hoſpital. The ſack was not as full as when I firſt tapped him. After ordering him a doſe of phyſick, I applied the cauſtick, compoſed of lapis infernalis beat up with ſoap, and gave him twenty drops of tincture thebaic after.

On taking off the cauſtick, I found it had run to more than the breadth of a crown *: the man felt a good deal of pain. The teſticle, next day, became conſiderably enlarged, and painful. The whole ſcrotum was wrapped in the flax-ſeed pultice, and the paregorick repeated at night: A ſaline julep given through the day. The third day, the enlargement of the ſcrotum, and up the ſpermatick chord, was very painful; and he had a pain in his back. I ordered him to be bled, an emollient clyſter to be given him, with ſome ſpoonfuls of a laxative mixture, ſo as to procure four or five ſtools, and the paregorick

* This accident happened by uſing part of a cauſtick, that was prepared for another man the day before, ſo that it was wet.

regorick as uſual. The fourth day the pain of his back ſubſided; but the ſcrotum was very painful, inflamed, and the tunica vaginalis appeared black and tenſe; round the circumference the ſloughs began to ſeparate. Fomentations, the emollient pultice, ſaline mixture, paregorick at night, and a looſe belly, was the treatment.

Although the tunica vaginalis was engaged in the ſlough, yet I did not puncture it until the eighth day. The water gradually drained off: the whole ſcrotum was very painful, and the ſore ſloughy, His belly was kept looſe, and I gave him the bark.

About the ſixteenth day the entire tunica vaginalis ſeparated, and came away: It was ſome lines thick. From this time the pain ſubſided, and a large ſuppuration took place; the teſticle appeared, with the tunica albuginea, entirely covered with granulations; the ſore began rapidly to contract; all pain ſubſided; and, at the end of four weeks, the ſcrotum was nearly of its natural ſize, and the ſore not the breadth of a ſhilling; and at the end of ſix weeks, he was entirely well.

Accident here ſhewed me the effects of a large cauſtick; for I did not intend that the eſchar ſhould be more than the breadth of a ſixpence: However, I was agreeably ſurprized to find the ſymptoms, although painful, by no means hazardous; as the man was not a moment in danger, and the radical cure is certain.

In Elſe's method, I never could obſerve the tunica vaginalis entirely ſlough away, nor do I believe it generally happens *. But, in this caſe, one ſphere of it was expoſed by the cauſtick, and ſeparated entire; for, by gently pulling with my forceps, it came away. From this caſe, I am inclined to believe that the cauſtick may, without danger, and even to advantage perhaps, be applied to a larger extent.

CASE

* Mr. George Stewart, ſurgeon to the Royal Infirmary, who has an extenſive practice in this line, has been ſo obliging as to inform me, that he has radically cured twenty-one patients of the hydrocele by the cauſtick of lapis infernalis, in Elſe's manner, without any diſagreeable accident intervening; nor has he perceived, that the tunica vaginalis has ſloughed away in any, as mentioned by Mr. Elſe uſually to happen; and they all got well from four to ſix weeks.

CASE XIII.

January, 1781.

AN healthy young man, aged eighteen, had water collecting, for fifteen months, in the tunica vaginalis of both teſticles. Both hydroceles were oblong, and almoſt tranſparent from the thinneſs of the integuments. After bleeding, and ordering him ſome cooling phyſick, I applied the cauſtick of lapis infernalis and ſoap to the right; and as it was ſo oblong, about the middle of the tumour. The eſchar ſeparated in the uſual time, and the tunica vaginalis burſt, the water drained off: A ſuppuration ſoon ſucceeded, and the cure was effected in about five weeks.

During the inflammatory period, the left teſticle became inflamed, ſo that I punctured the ſack to ſee whether the degree of inflammation would effect a cure; but it did not, for the ſack filled in the fourth week of the treatment. I then ſimply rubbed the lapis infernalis on the inferior part, and ſoon formed an eſchar near the bigneſs of half a crown. After the water had been diſcharged by puncture,

ture, and the ſuppuration had detached the eſchar, the tunica vaginalis appeared crude and thickened, and ſeparated intirely in ſome days, and came away. The ſore rapidly contracted, and the young man was perfectly cured of his double hydrocele in two months. He never was in the leaſt danger, nor was the whole proceſs of the cure attended with fever, or any conſiderable pain. His bowels were kept free, and the bark was given after the ſuppuration was formed. An opiate was ſeldom requiſite.

I have generally obſerved that, on diſcharging the water, the patient's ſtomach turns, and he inclines to faint. This is a nervous affection, which a few drops of tincture thebaic given will prevent. The flax-ſeed pultice, &c. may be diſpenſed with, in a great meaſure, and compreſſes dipped in oil and ſpirits ſubſtituted.

CASE XIV.

July, 1781.

A MAN aged fifty, had the cauſtick applied to an hydrocele of the right ſide. The inflammation ran very high, the ſuppuration

ſuppuration was ill conditioned, and the whole tumour, at the end of five weeks, put on the appearance of a large ſarcocele. In this condition he came to the hoſpital, as caſtration had been propoſed to him, in another, as the only reſource: And I really, on examining the tumour, which was as big as a large melon, adviſed him to ſubmit to it, but he refuſed it.

I ordered him to ſtupe with a ſtrong decoction of hemlock, and pultice with the leaves; and gave him ſome calomel, which was purged off occaſionally. In about a week's time, there was a remarkable change for the better. A large ſuppuration ſucceeded; the tumour gradually leſſened; and in about a month's time he got radically cured of the hydrocele, and the enlargement gradually ſubſided.

In all thoſe caſes, we ſhould be very cautious in propoſing caſtration; for if we have but patience, and follow this line of conduct, an happy termination of the diſeaſe frequently ſucceeds. I have ſeen ſimilar caſes, in which caſtration was performed, and on examination, found the teſticle not materially engaged, the whole tumour being formed by the thickening and inflammation of the

tunica

tunica vaginalis teſtis: One in particular occurred to me in practice: The tumour was amazingly large; the teſtis was entirely diſengaged, being rather leſs than natural; but the tunica vaginalis formed a thick ſack, much like a ſcooped melon; and where it is thickened we cannot expect it will ſuddenly contract, as that muſt be in conſequence of an abundant ſuppuration.

CASE XV.

Auguſt, 1781.

AN healthy lad, aged eighteen, had, for two years before he applied to me, an hydrocele of the left ſide, every way well circumſtanced. After the uſual preparation, I paſſed the ſeton in Mr. Pott's method: No particular circumſtance attended the operation. He got the antimonial paregorick a little after. In the evening he was very reſtleſs, complained much of pain in the teſticle. He was bled, a clyſter injected, and the paregorick repeated at night. He paſſed the night extremely ill.

THE next day, the teſticle and ſcrotum

were quite inflamed, and he had a very ſmart fever. He was in ſuch pain that I withdrew the ſeton, which had been in but fourteen hours; ordered him to be largely bled, a laxative to be adminiſtered, a ſaline julep with ſome drops of tincture thebaic to be given through the day, and to be ſtuped, and pulticed with the flax-ſeed pultice, the paregorick at night as uſual. The fever notwithſtanding increaſed; he became delirious at night. The effervescent draughts were given him occaſionally. His pulſe was quick and light, his ſkin intenſely hot, his tongue parched, and he had an inceſſant thirſt, his eyes appeared quite heavy, and as it were ſwimming in tears. Stools were procured by clyſter, or gentle laxatives.

The fourth day, he was covered with miliary eruptions, without any remiſſion of the ſymptoms; he raved conſtantly. The ſame line of treatment was continued.

On the ſixth day, the miliary eruptions ſpread into puſtules, ſo as completely to cover his entire ſurface. After this, various abſceſſes formed in different parts of the ſcrotum, to which I was obliged to give exit. When the feveriſh erithiſm ſubſided, the

the bark was given. However, he continued for three weeks in ſuch a ſtate, that I thought every day would be his laſt. A large quantity of matter formed in the tunica vaginalis, to which I gave exit by a pretty large opening: The teſticle appeared covered with the albuginea in a ſtate of incarnation. Things now began to wear a more favourable aſpect, but the teſticle ſtill continued extremely enlarged; ſo that I thought there was a collection of matter formed in it, and punctured it with a lancet: I was miſtaken, but no bad conſequence enſued. He had a very ſlow recovery, and was not quite well to be diſcharged until nine weeks were expired; and the teſticle remains ſtill large, but I believe it will gradually come down.

This man ran a ſevere riſk of his life, as he was in continued danger for three weeks. The ſeaſon of the year indeed, it being the dog days, was againſt the operation; but ſtill the inflammatory ſymptoms ran vaſtly higher than I ever ſaw before; and the general erithiſm was much greater, although the ſeton was ſo ſoon withdrawn. I am more and more convinced of the danger attending the

ſeton, and of the preference we ſhould give the cauſtick in moſt caſes.

I am indebted, for the following Caſes and Remarks, to Mr. James Henthorn, Surgeon to the Houſe of Induſtry.

JOHN Richardſon, aged fifty, of a robuſt conſtitution, was admitted to the hoſpital of the Houſe of Induſtry, on the 6th of February, 1780. About three years and an half before, he had perceived a ſwelling in the right ſide of the ſcrotum, which continued to increaſe without pain for about half a year; when he perceived a ſwelling on the other ſide, which continued alſo to increaſe without pain for three years: During that time he had been once poxed, and had alſo had a virulent gonorrhœa, but unattended with an hernia humoralis. The tunicæ vaginales were ſo much diſtended, that the ſpermatic proceſs could not be diſtinguiſhed on either ſide.

On the 9th, I pierced the tunic on the right ſide with a trochar, and drew off about three pints of bilious water, and paſſed a ſeton, according to Mr. Pott's method, on that ſide, in preference to the other, upon a ſuppoſition that, that tunic would be found thicker and leſs irritable. I then paſſed a trochar into the left ſide, which diſcharged about the ſame quantity of the like kind of fluid; but I did not paſs a ſeton on that ſide, from an apprehenſion that the inflammation, ariſing from two ſetons, might not be ſufficiently under control; and from an hope that the inflammation, cauſed by the introduction of a ſeton on one ſide, would (by conſent of parts) be communicated in a ſufficient degree to the other, ſo as to produce a radical cure of both. The teſticles, together with their proceſſes, were found in a natural ſtate; and I ordered him an opiate, to be taken at night.

10th, I found the ſcrotum much ſwollen, and the teſticle, on the right ſide, conſiderably enlarged, and very painful. He had ſpent a reſtleſs night, owing, in ſome meaſure, to the nurſe-tender's having neglected to give him the paregorick draught.

11th. He had got an opiate laſt night, and reſted well: his pulſe quiet; the ſcrotum and teſticle nearly in the ſame ſtate as the day before; a ſmall quantity of pus diſcharged from the upper orifice of the ſeton. He had three ſtools in conſequence of taking a purgative. The ſcrotum was fomented, enveloped in a bread and milk pultice, and ſuſpended in a bag truſs.

12th. Reſted well, no fever, the pain not conſiderable, although the right teſticle continued large and hard; the ſcrotum on the left ſomewhat tumid, and ſuffuſed with a ſlight inflammation; a copious diſcharge of good matter from both orifices of the ſeton.

13th. Nearly as yeſterday, the right teſticle rather larger, no appearance of inflammation on the left ſide; but a conſiderable quantity of fluid felt within the tunica vaginalis.

14th, and 15th. Nearly in the ſame ſtate; the opiate ſtill continued: pulſe rather fuller. Body kept open by a purgative.

16th. The inflammation ſomewhat abated, the pain much leſs. He did not take a paregorick draught laſt night, and ſlept tolerably well.

well. He continued nearly in the ſame ſtate till the 23d.

24th. Matter forming on the right ſide. March 8th. The ſeton was withdrawn. The inflammation immediately ſubſided, and for ſeveral days a conſiderable quantity of pus continued to be diſcharged, from the cavity of the tunica vaginalis, through both the orifices; on the ceaſing of which he was diſmiſſed radically cured of his hydrocele, on the right ſide only.

April, 1781, he came again to the hoſpital, with the vaginal tunic, on the left ſide, as full of water as it ever had been; and on the 3d of that month, I paſſed a ſeton. For two or three days, there was ſcarcely any inflammation. I then moved the ſeton up and down, ſo as to irritate the parts, and give him conſiderable pain. A very ſmart inflammation ſucceeded, ſufficient to produce a ſmall collection of matter in the dartos, on the left ſide; notwithſtanding which, I did not withdraw the ſeton for twenty days; and he was diſcharged the hoſpital on the 22d of May; but not radically cured.

ROBERT MAXWELL, aged ſixty-four,

was

was admitted to the hoſpital in April 1781: He had an hydrocele of long ſtanding on the left ſide. On the 10th, I drew off the water, and paſſed a ſeton; but as he appeared to me to be of a very irritable fibre, I ſmeared the ſilk with linimentum album.

12th. I found that I had not been wrong in uſing that precaution, as the inflammatory ſymptoms ran ſo high as to threaten the worſt conſequences. I immediately endeavoured to withdraw the ſeton, and ſucceeded without giving him the ſmalleſt pain, as the liniment had prevented the ſeton from adhering to the tunica albuginea. Several collections of matter followed, and the teſtis and ſpermatick proceſs continued enlarged and painful for a conſiderable time. But theſe ſymptoms all ſubſiding, he was diſcharged radically cured on the 3d of July.

From theſe caſes I think it may be inferred:

1ſt. That, the inflammation cauſed by paſſing a ſeton through the tunica vaginalis, on one ſide, will not be communicated to the tunica on the other ſide,

2d. That

2d. THAT the ſeton is not infallible; that it ſometimes cauſes more, and ſometimes leſs, inflammation than is neceſſary; and ſometimes, although the inflammatory ſymptoms run high, does not effect a radical cure.

3d. THAT an entire coheſion of the tunica vaginalis and albuginea does not always take place, when a radical cure is produced.

FROM the numerous opportunities I have had of paſſing the ſeton, in the Houſe of Induſtry, where the average number of people, communibus annis, exceeds one thouſand, and this diſeaſe very frequently occurs, I hope I may aſſert, without the imputation of preſumption, that a total coheſion of the tunics does not always exiſt, when a radical cure of the hydrocele is effected, either by a ſeton, cauſtick or tent: Nor is it, in my opinion, neceſſary, (in order to account for the diſorders not returning) to ſuppoſe ſuch an union to have taken place.

I BELIEVE it is generally admitted, that this diſeaſe is occaſioned by an obſtruction of the abſorbent veſſels of the tunica vaginalis:

vaginalis: Then ſurely, if, by any means, an equal obſtruction of the ſecretory veſſels can be procured, it will as effectually prevent the accumulation of a fluid within the tunica, as if it's cavity was totally obliterated.

A COM-

A

COMPARATIVE VIEW

OF THE

Different Methods of Cutting

FOR THE

STONE,

With ſome REMARKS on the MEDICINES generally exhibited as SOLVENTS of the STONE.

THE diſeaſes of the urinary bladder have, from the earlieſt times, formed a principal object of medical enquiry. Down from Hippocrates to the preſent day, we find, in all general ſyſtems of phyſick, that the ſtone, ulcerations of the bladder, retention of urine, have particularly engaged the attention of authors; at the ſame time that the patients, who laboured under thoſe dangerous and painful complaints, were given

up

up by the regular practitioner, and generally fell under the direction of daring empiricks and quacks.

That this was generally the caſe throughout Europe, until within this century, will, I preſume, be readily admitted by thoſe who are converſant in the medical tranſactions antecedent to the above period; nor, at this day, is the regular practitioner ſo generally employed, in the moſt delicate operations, but that, ſometimes, the lithotomiſt, or oculiſt, will be preferred before him.

It is much to be regretted that the promiſe, which Hippocrates exacted from his pupils, of not cutting for the ſtone, but leaving that operation to thoſe who made a particular profeſſion of it, was not only kept by his ſucceſſors; but, that moſt of the capital operations were equally relinquiſhed: A circumſtance which greatly retarded the advancement of ſurgical knowledge; and, to the great prejudice of mankind, ſplit ſurgery into ſo many branches, that almoſt every operation formed a diſtinct profeſſion. This was ſo far from being uſeful, in rendering thoſe more expert, who applied themſelves only to one particular operation, that it precluded

cluded the regular ſurgeon from the advantage of experience, and conſequently the operation from being improved; and threw the operative part of ſurgery into the hands of the moſt illiterate quacks, who, as their bread depended on operating, often operated without any kind of neceſſity, and were incapacitated by their ignorance, and general want of conduct, from deriving any advantage from experience, or from improving the operation, by which they gained a livelihood. The diſeaſe, which makes the ſubject of thoſe obſervations, ſtrongly evinces the truth of what is here advanced.

It is very evident, that Hippocrates did not conſider the diſeaſes of the bladder, with that degree of attention, he uſually conſidered other diſorders; and that he relinquiſhed this part of practice to thoſe who confined themſelves to cutting for the ſtone; the more particular inveſtigation, of thoſe diſorders, being reſerved to the time of Celſus.

Celsus conſiders blood, or pus, in the urine as ſure ſymptoms of either the bladder or kidneys being ulcerated. If the urine be thick, and ſomething like hairs or caruncles

runcles appear in it; or, if frothy or fetid, or mixed with ſand or blood, attended with pains about the pubis, frequent eructations, bilious vomiting, cold extremities, and frequent inclination to make water, which is limpid, reddiſh, or pale, and paſſes with difficulty, he concludes, that, from thoſe ſymptoms, we may be certain the kidneys are diſordered.

In the ſtone, he ſays, the urine is made with painful exertions, and, with difficulty comes away, either drop by drop, or ſlowly, ſometimes involuntarily, is ſandy, bloody, or purulent; the patient is obliged to take to different poſtures, in order to facilitate its expulſion, ſome drawing out the penis to alleviate their pain; a ſenſe of weight is felt about the neck of the bladder. Celſus is the firſt author who has deſcribed the method of relieving, by ſurgical operation, this imminently dangerous and exquiſitely painful complaint.

The operation, which Celſus has propoſed for the extraction of the ſtone, is that which is well known by the name of the apparatus minor, or cutting on the gripe; and, altho' he conſidered it as raſh to attempt performing it on any

any perſon, under the age of nine years, or above fourteen, yet it was generally adopted, without ſuch limitation, and practiſed until the middle of the ſixteenth century; when the apparatus major, introduced to the publick by Marianus Sanctus, although invented by De Romanis of Cremona, was juſtly preferred to it; ſo that the regular practitioners abandoned it, and cutting on the gripe was only practiſed by itinerant lithotomiſts.

The ſimplicity of the apparatus minor ſeems to have ſtrongly recommended it to Heiſter; and he ſays that, in many caſes, it may be practiſed with great advantage; as in all thoſe where the ſtone can be eaſily brought down, by the finger in ano, and made protuberant in perineo: This is not hard to effect in young children; and I have been ſometimes, on the authority of Heiſter, tempted to cut in this manner; but never did but twice, and that where the ſtone had been fixed in the entrance of the urethra: Both patients recovered extremely well from the operation.

Groenevelt *, in his Diſſertatio Lithologica, ſays cutting on the gripe was commonly practiſed in England; and our eldeſt ſurgeon

* He wrote in 1684.

geon * here aſſures me that, in his time, one man, in particular, cut in this method with ſucceſs, although he made no exception as to the patient's age.

But Lithotomiſts, who cut on the gripe, did not perform the operation as pointed out by Celſus; for, inſtead of the lunated inciſion he recommends, they cut directly on the ſtone; ſo that this method approached very near to the lateral operation †, as to the diviſion of the parts.

However, if we conſider the difficulty of bringing down the ſtone into the neck of the bladder, the contuſion thoſe endeavours muſt occaſion; the uncertainty of getting the ſtone in a favourable ſituation, in order to cut on it, the laceration that attends the extraction, and the impracticability of performing this operation, except in a few caſes, I preſume, it will appear that the apparatus minor may, at this day, be juſtly looked on, as one of the exploded operations of ſurgery.

To the apparatus minor ſucceeded the apparatus major, an operation that was in general

* Mr. Daunt.

† Vide Albucaſis's deſcription of the operation.

neral uſe, until Cheſelden publiſhed his lateral method of cutting for the ſtone.

WHOEVER will look over the ſeveral treatiſes on this ſubject, by Colot, Tollet, and Mery, will find that, by the direction of their inciſion, which was made parallel to the raphe, and extended, from under the ſcrotum, for two or three inches downwards, will be convinced, that they only opened the urethra, and that in the moſt ineligible part; and that it was impoſſible, even with all their dexterity, to cut entirely the bulbous part of the urethra, without injuring the rectum. The conſequence was, that, in the dilatation, and extraction of the ſtone, the membranous part of the urethra, proſtate gland, and neck of the bladder, were miſerably torn *; ſo that only two, out of five, generally ſurvived the operation, and it is to be ſuppoſed that hardly any, if the ſtone happened to be large.

BOUDOU, of the Hôtel Dieu, and Marechal, both improved this operation, by inclining the ſtaff towards the right groin; ſo as to give their inciſion a ſort of lateral direction;

* Vide Le Dran's Parallele des differentes Manieres de tirer la Pierre.

and, De La Faye * ſays that, by the coup maître, the neck of the bladder was cut laterally, and a little portion of the proſtate. Although this ſhould be true, it would not be of any great conſequence for the more eaſy extraction of the ſtone, or ſave the parts from laceration: For, a great defect in this method is, that even their external inciſion neither had, or could have a proper degree of extenſion

In 1722, Douglas revived the operation of the apparatus altus. This method had been firſt practiſed through neceſſity, in 1560, by Francus, and after him by others. Mr. Douglas produces four caſes in which he performed it; three recovered, in one of which he opened the peritoneum, and one died. Cheſelden, ſoon after, cut nine in this method; only one died: He publiſhed an account of his ſucceſs in 1723, and, at that time, was an advocate for this operation: But he ſoon after dropped it; for, as it was neceſſary to diſtend the bladder, ſo as to make it riſe above the pubis, in order to make an inciſion into it, this was not always practicable, and, in the endeavour, the bladder was ſometimes

* Vide his notes on Dionis's Operations.

times burſt; beſides, the peritoneum was liable to be cut, and the cavity of the abdomen expoſed to the influence of the air; there was danger of the protruſion of the inteſtines, and of a putrid ſuppuration to ſucceed, from the urine lying continually in the wound: Theſe are the diſadvantages that ſeemed of ſo great conſequence to Mr. Cheſelden, as to induce him to relinquiſh this operation; nor ſhould it ever be performed, except on the principles that obliged Francus to undertake it, which was an abſolute impoſſibility of extracting the ſtone by the lateral method, and a probability of ſucceeding by cutting above the pubis. This is a caſe, from many circumſtances, that muſt very ſeldom occur in practice.

We are now led to conſider the advantages of the lateral method, of cutting for the ſtone, which is the chief object of the preſent enquiry.

RAU *, profeſſor of anatomy at Leyden,

 was

* Heiſter impeaches the conduct of Rau with unwarrantable malignity; for, he ſays he was diſcharged the public profeſſorſhip for miſconduct, or ill behaviour: This by no means coincides with the character Albinus has drawn of him in his funeral oration; for, he concludes his character by one of the greateſt elogiums that can be conferred on any man; ſaying, he fulfilled all the duties of a good citizen.

was the firſt, after Frere Jacques, that gave celebrity to the lateral method of cutting for the ſtone: He is ſaid to have cut, with the moſt remarkable ſucceſs, one thouſand five hundred and forty patients. Notwithſtanding that he made a ſecret of the particular manner in which he cut, as his ſucceſſor and pupil, Denys, has done; yet, he pretended that he made his inciſion directly into the bladder, without materially intereſting the urethra, or proſtate; and, Mr. Cheſelden ſeems to have been convinced that the fact was ſo. But Sharp has extremely well remarked, that it is almoſt impracticable to cut into the bladder, in this way, without touching the proſtate gland; and it is very likely that Rau himſelf was deceived in this point. However, Cheſelden, in endeavouring to improve Rau's method, met with very bad ſucceſs; for, he loſt four, out of ten patients, whom he cut in this manner, by a putrid ſuppuration that ſucceeded; which was cauſed, as he himſelf relates, by the urine continually lodging on the cellular membrane, outſide the rectum.

However, this did not intimidate Mr. Foubert from adopting the idea of Rau's cutting directly into the bladder; and he is of opinion,

opinion, that the utmoſt point of perfection, lithotomy can receive, conſiſts in not intereſting the urethra, or neck of the bladder, in the operation. Therefore, after diſtending the bladder with water, he plunges a long trochar, juſt by the tuberoſity of the iſchium; when he has got into the bladder, he introduces his lithotome on the groove of the canula, and makes a ſufficient opening into the bladder, above the urethra, and one ſide of the neck of the bladder, or between the inſertion of the ureter and proſtate gland.

This operation was attempted to be improved by Mr. Thomas *. However, I preſume it will appear, that it muſt be attended with all the diſadvantages of Mr. Cheſelden's firſt method, and ſome additional defects; for, it has happened, that the operator has miſſed getting into the bladder with the trochar. Mr. Foubert himſelf was fully convinced of this, from the bad ſucceſs he had in ſome caſes; and although he endeavoured, by placing a flexible canula in the wound, to obviate the gangrenous ſuppurations, that ariſe in conſequence of the inſinuation of the

 urine

* Pallucci has alſo endeavoured, but to little purpoſe, to improve this method, which he looks on to be one of the fineſt inventions in lithotomy. Vide his Remarks on Lithotomy.

urine into the cellular membrane all round; yet, ſoon after it was invented, this operation came, with great juſtice, to be generally diſcredited; and I hope, for the good of mankind, that no ſuch operations will be again revived.

LITHOTOMISTS, at preſent, ſeem generally agreed in opinion, that the more eligible method, of cutting for the ſtone, conſiſts in giving a proper degree of extenſion to our external inciſion; and dividing the membranous part of the urethra, the proſtate gland, laterally, and the neck of the bladder.

HOWEVER, it is very evident that Cheſelden did not entirely divide the proſtate, nor does it appear it was his intention; nor would it be eaſy to do, by cutting, from within, outwards, as Sharp, Bromfield, and Pouteau direct *; for their methods of operating do not materially differ. In the method, that was generally taught in France, in 1768 and 1769, and practiſed in the Hôtel Dieu, one third of the proſtate gland was never divided; and

* Bertrandi, in his Obſervations, gives Mr. Cheſelden's method the preference.

and frequently, the gland was not at all touched, the bulbous and membranous parts of the urethra, being the only parts inciſed: The conſequence was, that ſtones, any way large, were extracted with great difficulty, and the patient's generally died.

If we conſider that the proſtate gland, which we often find conſiderably enlarged in calculous patients, is of itſelf a ſolid whitiſh maſs, as large as a cheſtnut, incapable of giving way, without being rent aſunder; and the impoſſibility of extracting a ſtone, without it's being either divided with a knife, or torn from the urethra, and lacerated in the effort; we may well judge how painfully laborious the extraction of a large ſtone muſt be, where this gland is not divided, and the imminently dangerous conſequence of being obliged, otherwiſe, rudely to lacerate it. I therefore preſume that the method, in which thoſe parts are fairly divided with the knife, will contribute conſiderably to leſſen the danger, attendant on cutting for the ſtone.

As cutting for the ſtone, in the methods already deſcribed, has been always eſteemed a difficult operation, and in which, the Surgeon's operative abilities are put to the ſeve-

reſt

reſt teſt, practitioners have invented, in order to ſupply the want of dexterity, a variety of inſtruments to divide the parts intended, with more certainty, and leſs danger, than when we uſe only the knife, and, at the ſame time, leave as little to chance as poſſible.

Mr. Le Dran *, I believe, was the firſt that contrived other inſtruments, beſides the knife, more effectually to divide the proſtate gland, and neck of the bladder. He ſtrongly inſiſts on the great advantages, that ariſe from having thoſe parts fairly divided, inſtead of being lacerated; and contends that the inciſion ſhould be carried on, from the end of the firſt inciſion, to the orifice of the bladder, incluſively: By this, the extraction of the ſtone is much facilitated. Although Mr. Le Dran's method, and inſtruments, were not generally uſed, and at preſent, I believe, never practiſed; yet he has great merit in making the firſt advances towards improving the lateral operation.

But, Mr. Le Dran ſeems to have begun his external inciſion rather too high, and did not continue it ſufficiently low; he unneceſſarily

* Vide his Operations of Surgery.

ſarily divides the anterior part of the urethra, as far, he ſays, as the inciſion in the ſkin; and neither his director or knife are well calculated, afterwards, to give a proper degree of ſteadineſs to the operator, or to execute the intention of the operation.

In the year 1750 *, I believe, Frere Côme contrived his biſtouri caché. The ſimplicity of the inſtrument was ſuch, and the method of uſing it appeared ſo extremely eaſy, as to recommend it to many ſurgeons; as it was affirmed, that the leaſt dextrous ſurgeon could, with eaſe and ſafety, perform the operation, as well as the moſt experienced: However, the ſucceſs was various, and did not, in general, correſpond to this character. Mr. Louis † has, in a memoir, ſhewn the defects of this operation, and the dangerous conſequences attending it, the chief of which ſeem to be as follows:

Frere Come's biſtouri caché is very far from being an inſtrument, whoſe uſe requires little or no dexterity in the operator; for, a great

* Mr. Pouteau, and Le Cat, both invented lithotomes, but they never were generally adopted into practice.

† Vide Memoires de L'Academie Royale de Chirurgie. Tom. III.

great deal of the ſucceſs of the operation will depend on the proper management of the biſtouri caché, after we have introduced it into the bladder; and, as Mr. Bromfield † has well obſerved, there is great nicety in making the drawing cut; for, if the blade of the inſtrument is not placed with ſome obliquity downwards, it will wound the erector penis, and that branch of the hypogaſtric artery, called pudica externa; if placed quite perpendicular, it will wound the veſſculæ ſeminales, and inteſtine; and, if you draw it in a ſtraight line towards you, the bladder will be wounded beyond it's neck. From this it will appear, that the biſtouri caché is not well adapted to the general dexterity of ſurgeons. I have operated on the dead ſubject with this inſtrument, very frequently, and I find Mr. Bromfield's account of it to be a very fair repreſentation; for, if we ſet the inſtrument at any of the higher degrees, after withdrawing it, we will find the tragit of it marked on the fundus of the bladder: This muſt, and really does, ſometimes ſubject the operation to fatal hemorrhages, particularly where the veſſels about the neck of

† Vide his Obſervations in Surgery. Vol. II. p. 240.

of the bladder are varicous, which is not unfrequent in thoſe caſes.

Besides, all that certainty of dividing the parts intended, when we ſet the inſtrument to a certain degree, is found to be fallacious; as it will vary, and depend very much on the operative abilities of the ſurgeon; ſo that, although it may be an uſeful inſtrument in good hands, it is, by no means, calculated for the generality of operators *.

Mr. Hawkins's cutting gorgeret appears, at firſt view, extremely ſimple, and well calculated to render the operation of lithotomy quite eaſy. However, there is a good deal of dexterity required in the management of it; for, after introducing the beak of the gorgeret into the groove of the ſtaff, if the operator does not properly incline the ſtaff towards himſelf, at the ſame time that he lowers the handle of the gorgeret, ſo that it's beak may be puſhed onward along the groove of the ſtaff, the gorgeret may ſlip between the rectum aud the bladder, and the intention of the operation be defeated †.

However

* Mr. Caque, Surgeon at Rheims, has improved the biſtouri caché, by ſhortening the cutting blade, and making it blunt at the point.

† An accident which has ſometimes happened.

However, I muſt confeſs, this does not appear to be the ſtrongeſt objection againſt the uſing this inſtrument in preference to others; but that, in all the trials I have made with the gorgeret, on the dead ſubject, I never found the opening into the bladder ſufficiently large, for the extraction of a ſtone of a middling ſize, without a conſiderable laceration of the parts. I have frequently taken the largeſt ſized gorgeret, and could not find that, in the adult ſubject, I ever entirely divided the proſtate gland, if it was any way large: And, in the operations that were performed here on the living ſubject, if the ſtone was large, the extraction was painfully tedious, and effected with great difficulty, and in ſome caſes not at all.

In this curſory review, of the different methods and inſtruments, propoſed for performing the lateral operation, I preſume it will appear, that many of them are rather too complex, and require ſo much dexterity in the operator, as to render the event of the operation additionally precarious: Beſides, the entire diviſion of the proſtate gland is very uncertain in all, except we uſe Frere Come's inſtrument; and then, we run the contrary

contrary riſk of cutting into parts which ſhould remain untouched.

To obviate, in ſome degree, all thoſe diſadvantages, and to ſecure, to the operator, a certainty of dividing the membranous part of the urethra, proſtate gland, and neck of the bladder, without putting his dexterity to any ſevere trial, Mr. Daunt, a ſurgeon of the firſt eminence in this city, contrived, in 1750, a conductor and lithotome *, which have been found extremely well calculated for the purpoſe. The method of uſing them is as follows:

The patient being properly ſecured on the table, and the ſtaff introduced, and held by an aſſiſtant, the operator makes his external inciſion, as deſcribed by Sharp and Bromfield, or as if he was to uſe the cutting gorgeret. Having opened the membranous part of the urethra, the operator introduces the conductor, along the groove of the ſtaff, into the bladder; he then withdraws the ſtaff, and takes the conductor in his left hand. Having introduced his two fore-fingers into the handle, A, he places his thumb over the bow of the inſtrument, B, which gives him an

* Vide plate II.

an entire firmneſs, as to the reſt of the operation. He then lateralizes the conductor by the pronation of his wriſt, and takes the lithotome, and engages it on the creſt of the conductor, and finiſhes the operation, by running the lithotome along the creſt. Having arrived at the extremity of the conductor, he withdraws the knife along the creſt; and then introduces the forceps on the conductor, which withrawn, he proceeds to the extraction of the ſtone.

Mr. Daunt ſent the conductor and lithotome to the late Mr. Morand, to preſent to the Royal Academy of Surgery, in Paris, for their approbation: The ſubſequent letters, for which I am obliged to Mr. Daunt, contain their opinion.

A Paris ce 14 Fevrier, 1754.

Monsieur,

J'AI recu, avec bien du plaiſir et beaucoup de reconnoiſſance, le détail et les inſtrumens, que vous m'avez envoyés, pour la perfection de la taille laterale. J'ai donné à l'Académie des Sciences, pour être mis dans ſon hiſtoire, ce qui regarde celle de vos ſuccès, parce qu'elle eſt en poſſeſſion de publier

ceux

ceux de la taille laterale. J'ai montré vos inſtrumens à l'Academie de Chirurgie, et j'ai été nommé Commiſſaire, avec deux autres de nos Meſſieurs, pour en faire des experiences ſur le cadavre. Je vous ferai part, avec grand plaiſir, du jugement qui en ſerà porté. Je lui ai montré auſſi votre bandage uniſſant pour le bec de lievre, et elle l'a fort apprové. Je ſuis chargé de ſa part de vous dire, qu'elle recevrà très volontiers tout ce que vous lui communiquerez de vos travaux, Pour moi, Monſieur, je vous prie d'etre bien perſuadé la parfaite conſideration avec laquelle je ſuis,

Votre tres humble et très

obeiſſant ſerviteur,

MORAND.

Paris, the 14th of February, 1754.

SIR,

I HAVE received, with great pleaſure, and return you thanks for, the account and inſtruments, which you have ſent me, for the improvement of the lateral method. I have given up to the Academy of Sciences what regards the account of your ſucceſs, in order to be inſerted in their tranſactions,

ſactions, as they are intitled to publiſh thoſe of the lateral method. I have ſhewn your inſtruments to the Academy of Surgery, and I have been named one of the committee, with two others of our gentlemen, to make trials of them on the dead ſubject. I ſhall, with great pleaſure, acquaint you of the judgment that will be paſſed on them. I have alſo ſhewn them your uniting bandage for the hair lip, and it has been much approved of. I am enjoined, on their behalf, to tell you, they will very readily receive all you will communicate to them of your obſervations. For me, Sir, I pray you to be thoroughly convinced of the perfect conſideration, with which

I am

Your moſt humble, and

moſt obedient ſervant,

MORAND.

MONSIEUR,

MONSIEUR,

ON a fait pluſieurs experiences avec les inſtrumens que vous avez communiqué à l'Academie pour l'operation de la taille. L'Academie en a etè ſatisfaite: On coupe très bien la proſtate et le col de la veſſie: Le biſtouri de Mr. Le Dran, dont le tranchant ſe trouve a la convexitè du demi croiſſant qu'il repreſente, produit le même effet: Comme la plupart des lithotomiſtes ſe propoſent de couper ces parties, il y en a beaucoup qui ont imaginé differens moyens pour y parvenir, et ils ont etè preſenté à l'Academiè; mais la forme particuliere que vous avez donnè au conducteur mâle eſt plus ſure et plus commode, par rapport à l'anſe qui eſt ſous le manche, et qui, à votre imitation, ſeroit très bien appropriée au gorgeret dont on ſe ſert ordinairement dans cette operation: Le ſecond inſtrument, qui eſt conducteur femelle et litotome en meſme tems, eſt conduit invariablement dans la veſſie au moyen de la tige echancrèe, qui eſt à ſon extremitè, et coupe lateralement le col et la proſtate: Il a paru aux Commiſſaires, qui ont fait l'epreuve de ce litotome, qu'il ſeroit plus convenable que la lame tranchante fût faite ſur le modele de celui de Mr. Cheſelden, c'eſt à dire, qu'elle fût un peu plus large et convexe vers la pointe, pour

couper plus exactement la proſtate, et plus etroite vers la baſe, cette largeur etant inutile, puis que les parties ont etè coupèes dans l'inciſion des tegumens.

J'ay l'honneur d'etre très parfaitement,
Monſieur,
Votre tres humble et
Tres obeiſſant ſerviteur,

ANDOUILLÉ,

Mr. DAUNT.

Commiſſaire de L'Academie
pour les correſpondances.

TEL eſt le jugement, Monſieur, que l'Academie a porté ſur vos inſtrumens pour la taille, que Mr. Blondel me preſenta de votre part. Le petit bandage uniſſant a eté montré à une ſèance et a eté fort approuvé. Nous ſerons charmés de recevoir vos remarques, et je me chargerois volontiers de les faire valoir, ſi elles en avoient beſoin.

Je ſuis avec une parfaite eſtime,
Monſieur,
Votre très humble et
Très obeiſſant ſerviteur,

MORAND.

Ce 27 Fevrier, 1755.

SIR,

THERE have been ſeveral trials made with the inſtruments you have tranſmitted to the Academy for the lateral operation: The Academy has been ſatisfied with them: They cut the proſtate and the neck of the bladder very well: Mr. Le Dran's biſtory, the cutting edge of which is on the convexity of the half creſcent it repreſents, produces the ſame effect. As moſt lithotomiſts have it in view to cut thoſe parts, many of them have deviſed different inſtruments to effect it, and they have been preſented to the Academy; but the particular form you have given the male conductor, is more ſure and commodious, on account of the bow on the handle, which, according to your manner, might well be adapted to the gorgeret uſually employed in this operation. The ſecond inſtrument, which is both a female conductor and lithotome, is invariably introduced into the bladder, by means of the curve teeth at its extremity, and cuts laterally the neck of the bladder and proſtate.

The committee, who have made the trials of this lithotome, have thought it more ex-

pedient that the cutting blade ſhould be made on the model of Mr. Cheſelden's; that is to ſay, that it ſhould be a little broader, and convex, towards the point, for the purpoſe of cutting the proſtate more exactly, and narrower towards its baſe, where this breadth is uſeleſs, as the parts have been cut in the inciſion of the teguments.

I have the honour to be moſt perfectly,

SIR,

Your moſt humble, and

Moſt obedient ſervant,

ANDOUILLÉ.

Commiſſary of the Academy for correſpondencies.

Mr. DAUNT.

SUCH, Sir, is the deciſion of the Academy on the inſtruments for cutting for the ſtone, which Mr. Blondel preſented to me on your behalf. The little uniting bandage has been ſhewn at a meeting, and has been greatly approved of. We ſhall receive your remarks with the higheſt pleaſure, and I ſhould readily

readily undertake to diſplay their merit, were it neceſſary.

I am, with perfect eſteem,

SIR,

Your moſt humble, and

Moſt obedient ſervant,

MORAND.

February 27, 1755.

THE ſuperior facility of performing the lateral operation with thoſe inſtruments, the ſteadineſs they give the operator, and the certainty of his dividing laterally the proſtate gland and neck of the bladder, are evident, I preſume, from the reſult of the repeated trials made on the dead ſubject, by order of the Academy.

It is remarked by the gentlemen of the Academy, that, if the blade of the lithotome was ſomewhat larger, and convex, at the point, and narrower at the baſe, it would be better adapted more exactly to divide the proſtate, &c. With this view, I gave the lithotome the form that is ſhewn in the plate, and altered the conductor, ſo as to be much

more handy, and to give the operator ſtill a greater firmneſs in operating, and obviates the neceſſity of lateralizing the inſtrument, which is a matter of the greateſt conſequence. To the ſtaff I have alſo given a greater curve than they commonly have *.

The only attentions, I preſume to recommend in operating, are, 1ſt, that the operator ſhould, except he poſſeſſes great firmneſs, ſeat himſelf in a chair of a convenient ſize, ſo as to reſt his elbow on his knee. 2dly, I have ever preferred holding the ſtaff, to entruſting it to an aſſiſtant; nor do I think it renders the operation, in the leaſt, more complex. 3dly, The operator ſhould give a ſufficient degree of extenſion to his external inciſion, ſo as to carry it a little below the obtuſe proceſs of the iſchium: This will contribute much to the eaſy extraction of the ſtone. 4thly, In opening the membranous part of the urethra, let the operator ſink his knife a little, and, at the ſame time, incline the ſtaff to him; after, he takes the conductor, and introduces it along the groove into the bladder: Of this he may, in general, aſſure himſelf by feeling the ſtone with the conductor. The engaging the lithotome on the

* Vide Plate III.

the creſt of the conductor, and the reſt of the operation, is ſo ſimple and obvious, as to require no farther directions. I think that introducing the fore-finger on the conductor, previous to introducing the forceps, is very proper; as by it we may, at once, aſcertain what opening we have made.

The eaſy or difficult extraction of the ſtone generally decides the ſucceſs of the operation. If it is large, in whatever manner we operate, the extraction will prove more or leſs painful, tedious and difficult, attended with contuſion and laceration of parts. The cauſe of death, in thoſe who have undergone the operation, where the kidneys, bladder, &c. were not in a morbid ſtate, will be found either to be from the exquiſite pain, attending the frequent introduction of the forceps, ſlipping of the ſtone, and laborious extraction, by which the patient is exhauſted, and expires ſhortly after the operation: In this caſe the patient may be ſaid to die of fatigue; for, his exit is too rapid, to admit of being imputed to inflammation or gangrene. Or, if this does not happen, we find all the ſymptoms, that after intervene, ſtrongly denote the violence done to the parts: Rapid fever, pukings, tenſion of the belly,

belly, followed by gangrenous ſuppurations, &c. bring about the fatal period. Thoſe ſymptoms do not ariſe from the ſimple diviſion of the parts with the knife, but from the contuſion and laceration they ſuffer, in the extraction of the ſtone.

I HAVE been often ſtruck with the great propriety of Colot's practice, in thoſe caſes, which was, where the ſtone was too big, or the patient too weak, to admit, as he ſays, of performing the entire operation, without the moſt imminent danger, he did not fear to wait for the period of ſuppuration; then he proceeded to the extraction of the ſtone with the happieſt ſucceſs *.

THAT ſuppuration gives a great degree of dilatability to the parts, is often proved from ſtones being extracted with great eaſe, after the ſuppuration has been formed, that reſiſted, at firſt, the moſt violent efforts of the operator. When this is duly conſidered, I preſume,

* J'eſtimai donc qu'après une ſimple inciſion, je pourrois attendre ſans crainte la ſuppuration de la playe, j'ai reconnu qu'après cet ouvrage la nature reprend le deſſus, et que quelque fatigue qu'on faſſe ſouffrir à la veſſie pour en tirer une ou pluſieurs pierres, on doit attendre un heureux ſuccés. Colot, Traitè des Tailles, p. 182.

preſume, it will be found very adviſable, in all caſes, where the ſtone is large, or, from any other circumſtance, the extraction is likely to prove difficult, to wait the period of ſuppuration, and by no means to fatigue the patient with any attempts immediately to extract the ſtone: And where there are more ſtones than one in the bladder, I believe, it will be the ſafeſt method, to extract them at different times.

THE treatment of the patient, after the operation, has been ſo ably laid down by different authors, that to give a detail of it here would be ſuperfluous.

I SHALL cloſe theſe obſervations by a few remarks on the unfrequency of the ſtone in Ireland, and on the futility of lithontripticks.

ALTHOUGH Dublin is reckoned the third largeſt city in Europe, and it's inhabitants may be computed at about two hundred thouſand, yet, calculous patients are rarely met with *. In the different provinces of Ireland, the ſtone is ſtill leſs frequent. By what

* It may ſeem extraordinary that, in ſo large a city, there has not been one operation for the ſtone, very near theſe two years. This tract was written in the latter end of 1779, ſince which time, four patients only have been cut in Dublin.

what I can find, from all the enquiries I have as yet been able to make, the operation of lithotomy is ſcarcely ever performed in the County Hoſpitals.

In Dublin, it is hard to compute the num- of thoſe, that have been cut in the different hoſpitals, as they generally keep no regiſter; but, from every account I am able to obtain, the numbers ſtand nearly as follows: Since the year 1770, in Stevens's, ſeven underwent the operation; in Mercer's, nine; in the Inn's Quay, one; Meath Hoſpital, one; United Hoſpitals, ten *; which makes, in all, twenty-eight, cut in the courſe of ten years; and ſome of thoſe came from the country.

From Dr. Dobſon's account of the number of patients, that have been cut for the ſtone, in the ſeveral county hoſpitals throughout England, it appears that, in the courſe of ten years, more have been cut in one county hoſpital in England, than in all the hoſpitals of Ireland put together: This is evident from fifty-five patients having been cut

* Theſe ten patients I cut in the method practiſed in the Hôtel Dieu; they all recovered in a ſhort time without any dangerous ſymptoms intervening, but it is to be remarked they were all young ſubjects, and the ſtones ſmall.

cut in the Norwich Hoſpital, which was only opened in 1772.

It is very difficult even to form a plauſible conjecture, why the people of Ireland ſhould be ſo exempt from calculous diſeaſes. I have read many ingenious, but few ſatisfactory reaſons, why the ſtone ſhould be more prevalent in one country than another, as in ſome provinces of France, different counties of England, the Highlands of Scotland, where, I am informed, the ſtone is a very common diſorder.

If we conſider that the greater number of calculous patients are to be found among the children, particularly thoſe of the poor*; and that it frequently happens that they are affected with gravelly ſymptoms, ſo early as to leave little room to attribute them to the influence of regimen, it will not be eaſy to find the cauſe in the non-naturals.

Were the crudeneſs, tenacity, and general

* Van Swieten's reaſon, why the children of the poor ſhould be ſo frequently afflicted with the ſtone, is, that the parents leave them a long while together in cradles, and give them diacodion, to keep them eaſy: But this reaſon may be deemed local; for although that cuſtom does not prevail in Ireland, ſtill the greater number of calculous patients are children.

ral bad quality of food to occaſion the ſtone †, no people in Europe ſhould be more afflicted with the diſorder than the poor of Ireland; for, throughout the whole kingdom, the poor live, the year round, moſtly on potatoes; and ſometimes, they have ſuch a ſcarcity of milk, that they are obliged to eat them with only ſalt: And, even among the manufacturers in cities they live very badly, their food being generally of the coarſer kind of ſalt meats, and they ſeldom indulge themſelves with any liquor, but the worſt of ſpirits, or whiſkey, to which they are in general greatly addicted, and drink it frequently to exceſs.

Now the only people in theſe kingdoms, who live ſo poor, and, as I hear, ſo very like the Iriſh, are the Highlanders; and, by all accounts they are very ſubject to the ſtone; ſo that, I believe, it will be found very difficult, and attended with great uncertainty, to account, on any ſure principles, for the frequency of the ſtone in one country more than in another.

† This has been eſteemed, among the German and Dutch authors, as the more frequent cauſe of the ſtone; but Platner thinks it may ſometimes ariſe from a natural defect in the organization of the kidneys and bladder. Vide his Inſtitut. Chirurg. p. 834.

It has been computed that the fixed air, contained in the human calculus, conſtitutes more than one half of it's bulk; and this fixed air has been looked on, as the vinculum of coheſion between it's terreſtrious parts *.

On thoſe principles, phyſicians have been induced to adminiſter, as ſolvents of the ſtone, ſuch medicines as are known to be abſorbents, as I may ſay, of this fixed air; or, on the contrary, ſuch as abound with it, and communicate to the ſtone more than it's natural proportion of fixed air. In either way, it was expected the ſolution of the ſtone would equally happen, by the extrication of the fixed air.

It is much to be regretted, that this ingenious theory, when applied to practice, has not, in any meaſure, anſwered the great expectations entertained of it; which ſerves to prove the uncertainty of all theory, that is not corroborated by facts, and how cautious we ſhould be of forming precipitate concluſions.

Since

* However, this has been denied by Macquer, one of the moſt celebrated Chemiſts in Europe. Vide the laſt edition of his Diction. de Chym. Art. Gas.

SINCE the time Mrs. Stephen's medicine was purchaſed by parliament, and that Dr. Whyt publiſhed his Eſſay on the virtues of lime water; lime water and ſoap have been eſteemed the moſt effectual lithontripticks, and, as ſuch, have been given in every form; and, what is a rare occurrence, they have had a longer and a fairer trial given them, than, perhaps, any other medicine; and that from the patients being wound up, by the plauſibility of the theory, into the abſolute belief that they were certain ſolvents of the ſtone.

HOWEVER, thoſe, who have perſevered the longeſt, and moſt regularly, in the uſe of thoſe medicines, have, notwithſtanding, died with ſtones in their bladders; as was the caſe of Lord Walpole, and the Earl of Orford: The firſt took lime water and ſoap, in large quantities, for eight years, and then died of a lingering fever, with three ſtones in his bladder. The Earl of Orford took Dr. Jurin's lixivium, or the capital ſoap lees, and died of an hemorrhage from the bladder *.

IT

* His Lordſhip's expreſſions to Dr. Jurin, a few days before he died, are too remarkable to be paſſed over. Doctor, ſays he, till now I could never believe, that your medicine would diſſolve, or break,

It cannot well be conceived, that medicines, ſo highly alkaleſcent, can be continued for a length of time, without introducing a ſeptick tendency into the whole ſyſtem. Two years ago, I cut a gentleman's ſon, who, for fifteen months before, had been on a courſe of lime water and ſoap: He was pale and bloated, his gums were looſe and ſpungy, his breath was very offenſive, his humours ſeemed ſtrongly to tend to a ſtate of putreſcency; and it was with difficulty he recovered, even with the liberal uſe of the bark, nor did the ſtone bear any impreſſion of the ſolvent. We ſhould, therefore, be extremely cautious how we perſiſt, for a length of time, in the uſe of medicines, that eventually may be productive of the worſt conſequences, and that never yet were known, in any inſtance, to anſwer the intention with which they were given, that is, entirely to diſſolve the ſtone.

The

break, a ſtone in the bladder: You have gained that point upon me. I find it is a thing of great efficacy, and I heartily wiſh good ſucceſs to it, both for your ſake, and for the good of mankind. But don't you think, added he, preſſing the Doctor's hand gently with his own, it has almoſt blown me up? Should not that make you very cautious in the uſe of it for the future? Vide Ranby's Narrative. However, his Lordſhip was miſtaken, as to the lithontriptick qualities of the lixivium; for there were many ſtones found in his bladder, after his death. The late Mr. Garrick alſo fell a victim to his confidence, and long continuance, in the uſe of ſolvents.

The next lithontriptick is fixed air, or mephtick gas, as Macquer calls it. This was recommended by ſome ingenious phyſicians *, as a powerful ſolvent of the ſtone. On it's being firſt introduced into practice, I made repeated experiments on human calculi, in order to aſcertain the ſolvent qualities of fixed air. I have weighed ſix different calculi, and ſubmitted them, for ſix weeks, to the immediate influence of fixed air, in a great variety of proceſſes, too tedious to mention, and the reſult was, that fixed air, immediately applied to the ſtone out of the bladder, did not prove a ſolvent nor make any impreſſion, worth mentioning, on the different calculi.

The late Dr. Mc. Bride, although a warm aſſertor of the great utility of mephtick water, in many caſes †, was convinced of it's inefficacy to diſſolve the ſtone out of the bladder;

* Particularly Dr. Hulme.

† I have repeatedly tried the effects of fixed air on putrid ſores, and never found it's antiſeptick qualities in any degree equal to a decoction of camomile flowers, acidulated with ſpirit of ſea ſalt, applied to the part. This is a medicine of great efficacy, given internally and applied externally in all ſoft, ſpungy, ſcrofulous enlargements, attended with caries of the bone: caſes that frequently occur in young people.

bladder; for, he was preſent at many of thoſe experiments; and it is very difficult to conceive, that a medicine, which does not exert a ſolvent quality, when immediately applied in it's full force to the ſtone, can poſſeſs, after paſſing through the circulation, ſuch powerful lithontriptick qualities as are aſcribed to it. However, if it does no good, it can do no harm, which is more than may be ſaid of moſt other medicines.

NOTWITHSTANDING the variety of lithontripticks every day propoſed †, a man, who has a ſtone once formed in his bladder, will have but a very poor chance for being relieved, except by the hand of the ſurgeon.

† The uva urſi, a ſpecies of the arbutus, which De Haen recommends as a lithontriptick, was never tried here, as far as I can learn; but, even by his own account of it, it's virtues muſt be very doubtful.

EXPLANATION

OF THE

PLATES.

PLATE I.

FIG. 1. Shews the ſteatomatous excreſcence, A, ſurrounding the vaſcular texture of the teſticle, C, which is perfectly ſound. B, is the ulcer mentioned. Through the part correſponding to the opening in the integument, the probe, A, is paſſed. The Epididymis, which is eaſily to be diſcerned in the tumour, is not expreſſed in the drawing. I mention this, leſt the excreſcence, which evidently ariſes from the albuginea, ſhould be miſtaken for an enlargement of the Epididymis.

FIG. 2. The flat trochar for tapping an hydrocele, and which will be found much preferable to either the common trochar or lancet.

PLATE II.

Mr. DAUNT's inſtruments for the lateral operation, and ſtones that have been extracted in his method.

FIG. 1. The conductor.

FIG. 2. The lithotome.

FIG, 3. Is a ſtone which Mr. Morris, Surgeon of Mercer's Hoſpital, was ſo kind as to give me, with this ſhort account of the perſon, from whom he extracted it:

Mr. ORFORD, aged fifty-ſix, calculous for many years, reſolved, in 1773, to undergo the operation, which Mr. Morris performed with Mr. Daunt's inſtruments, and happily extracted this ſtone, which weighed fifteen ounces and an half. The operation was not attended with any alarming hemorrhage. The patient recovered in the courſe of two months, and, after ſome time, could retain his urine, as well as ever.

FIG. 4. Is a ſtone, which weighed ſix ounces.

FIG. 5. Is a very extraordinary mulberry ſtone.

Plate II. P. 148.

FIG IV.

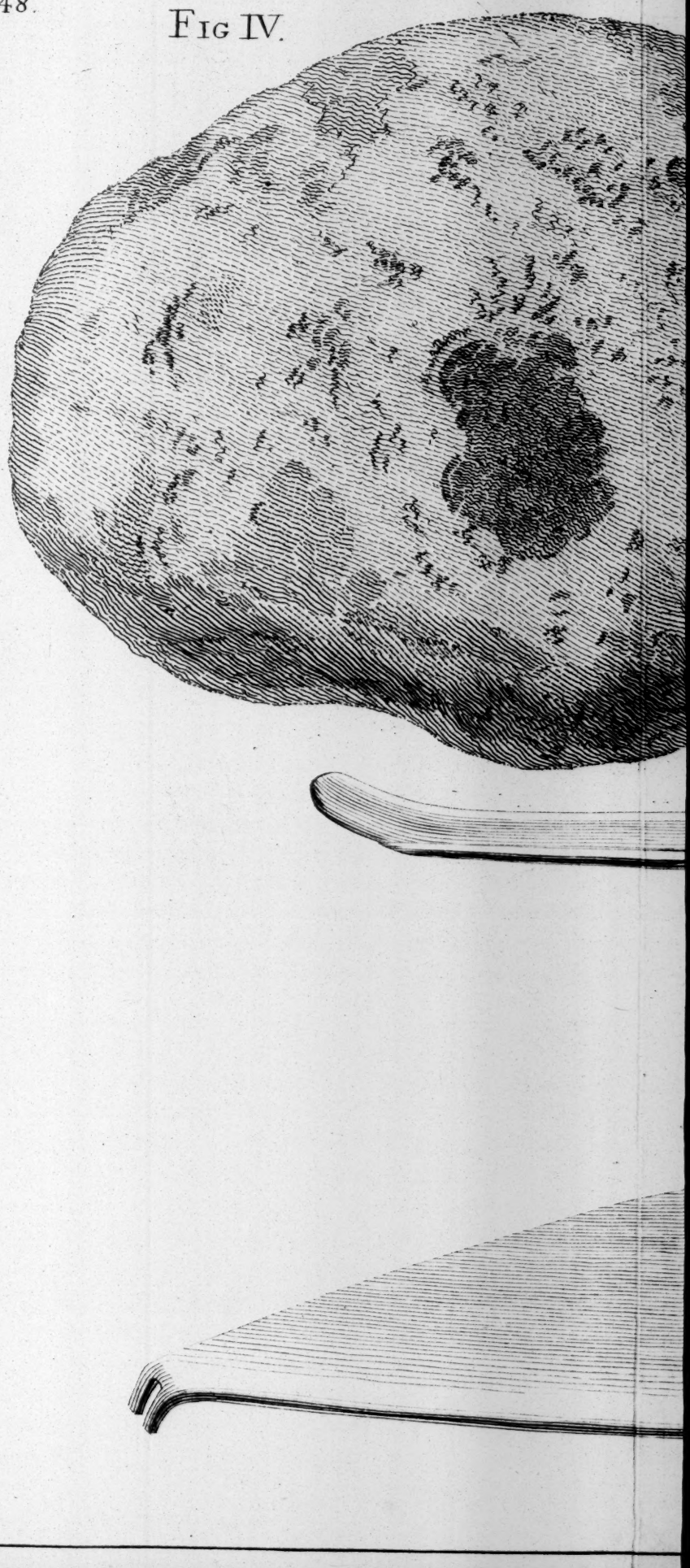
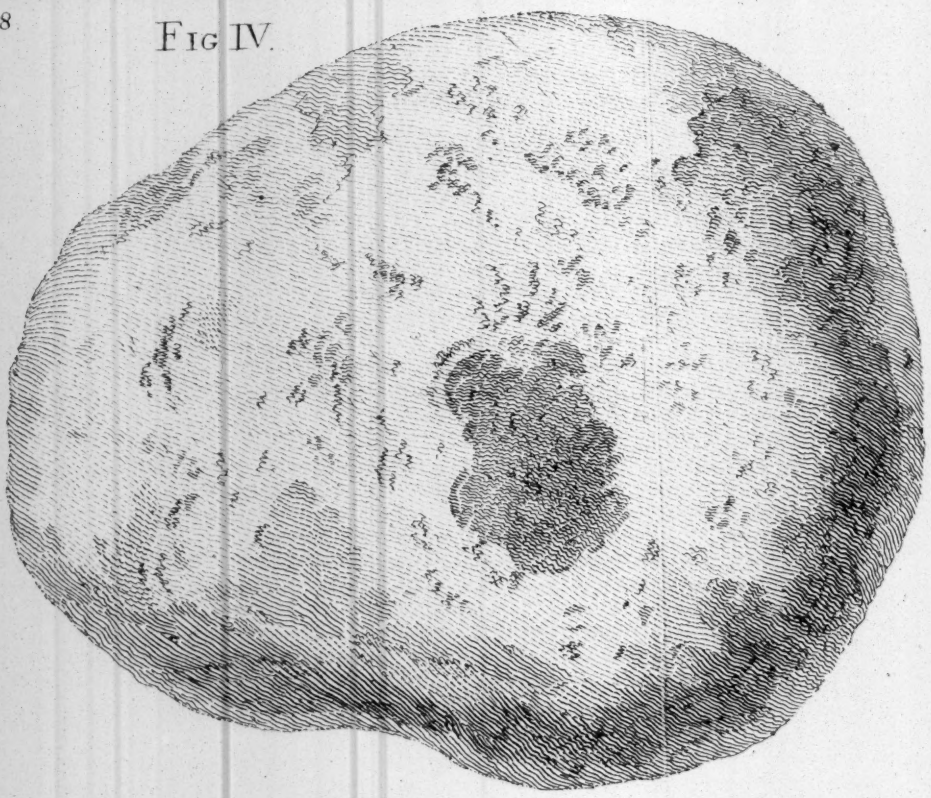


Plate II. P. 148.

Fig IV.



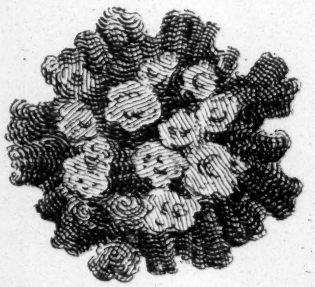


Fig V.

Fig I.

Fig II.

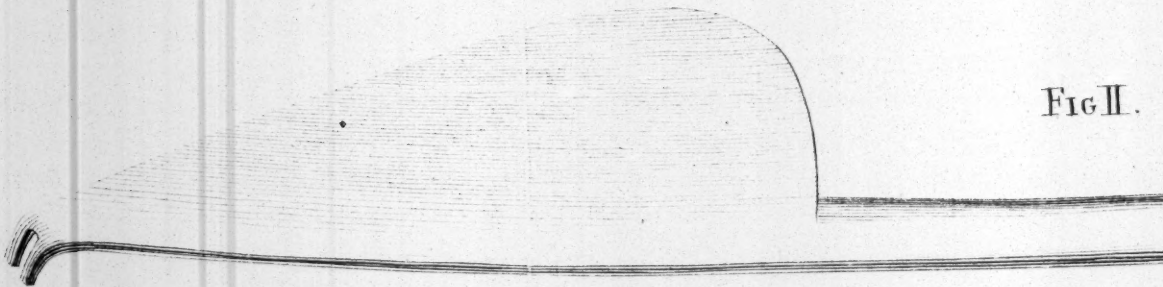
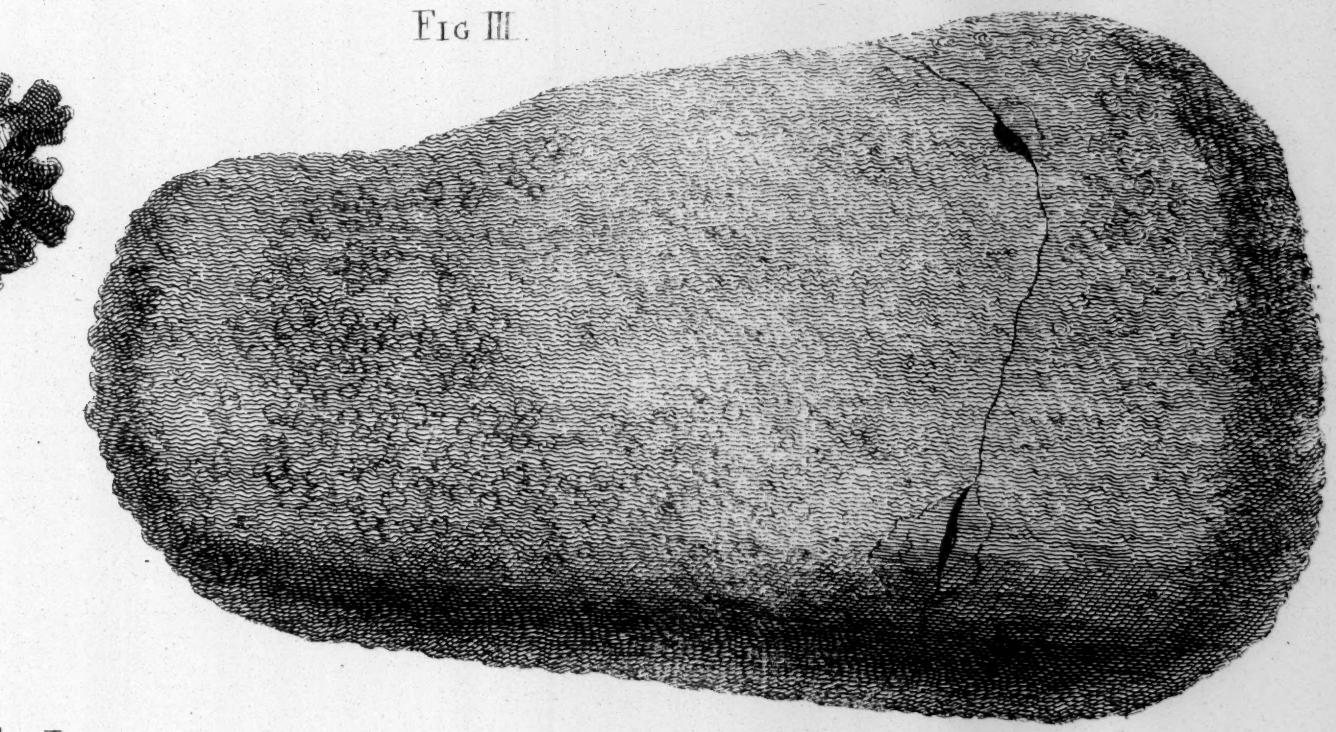


Fig III.



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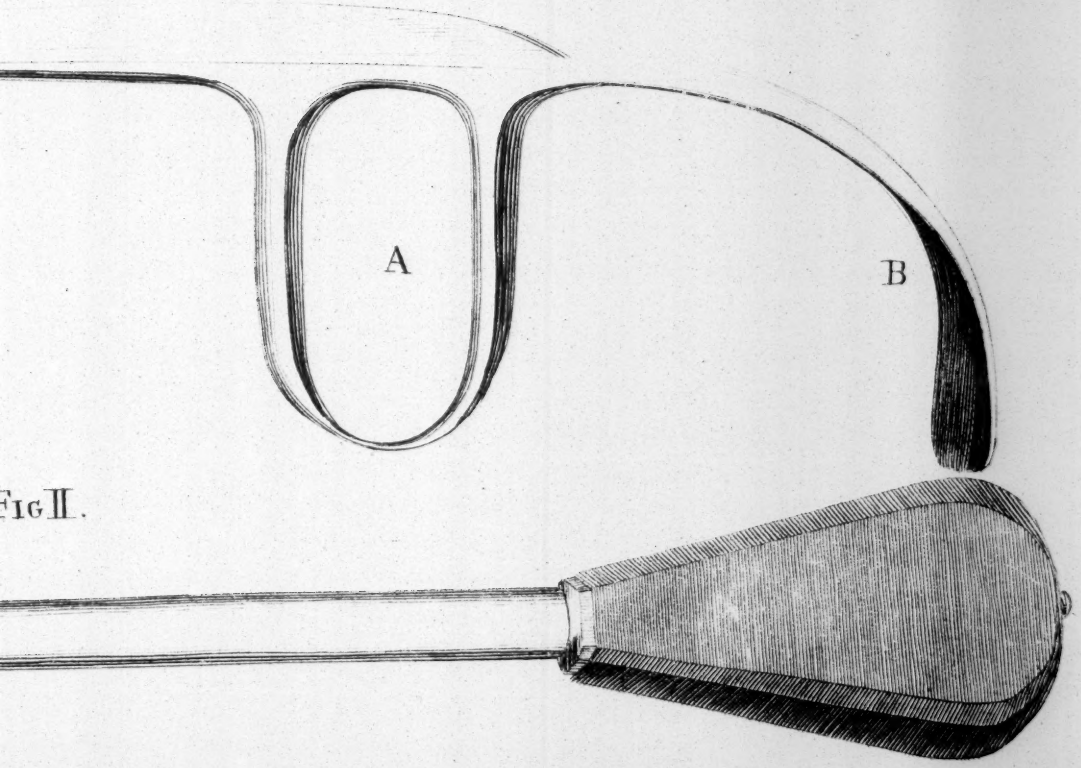

Fig II.

Plate III. P. 148.

Fig I

Fig II.

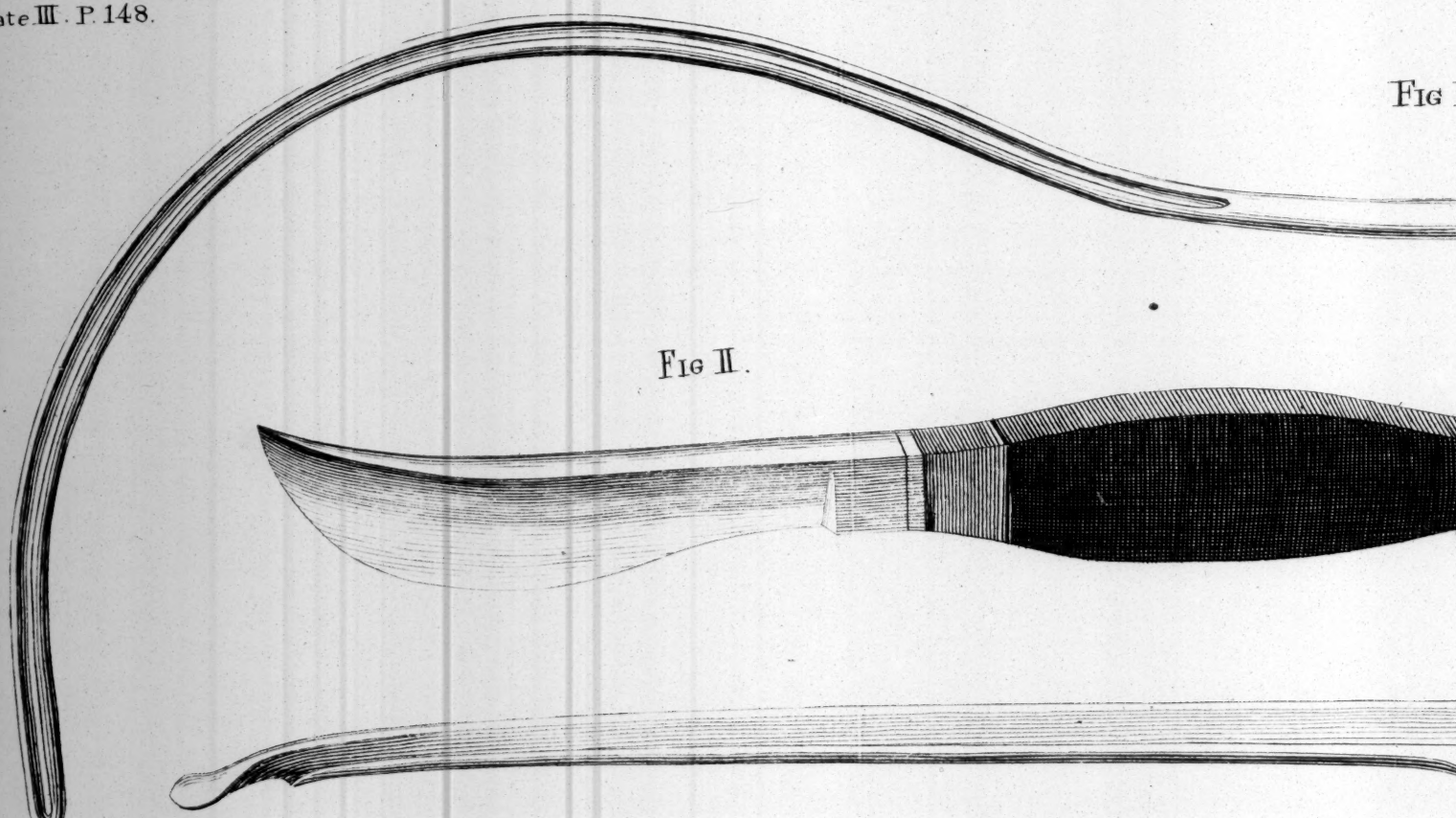

Fig IV.

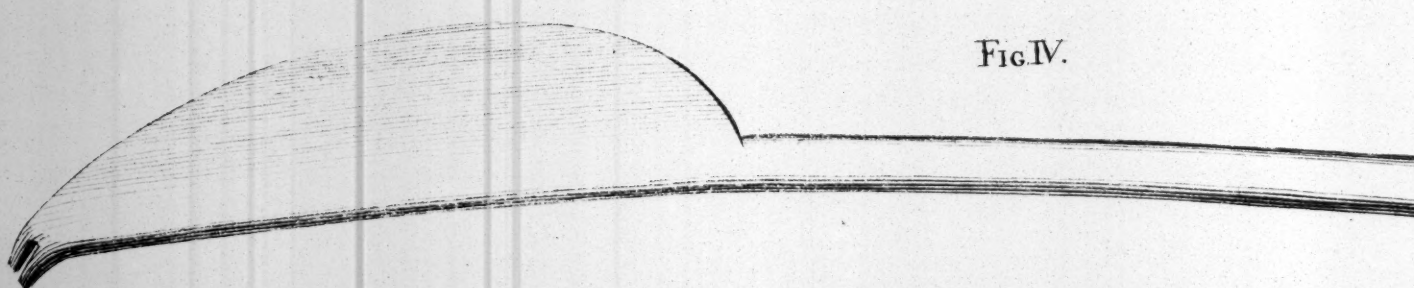

Fig I.

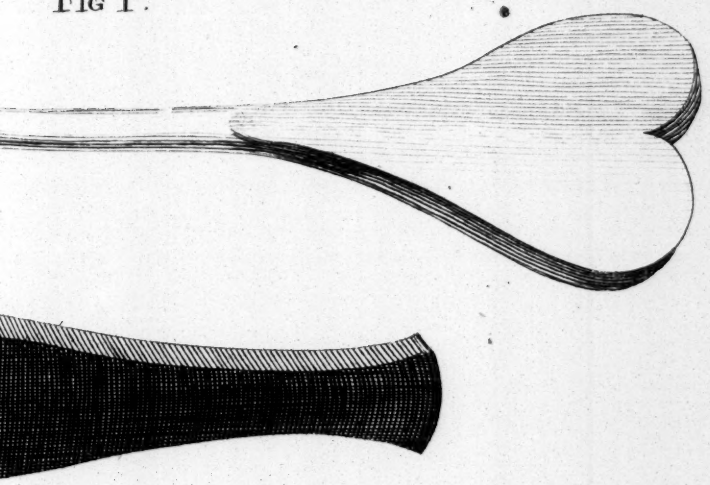

Fig III.

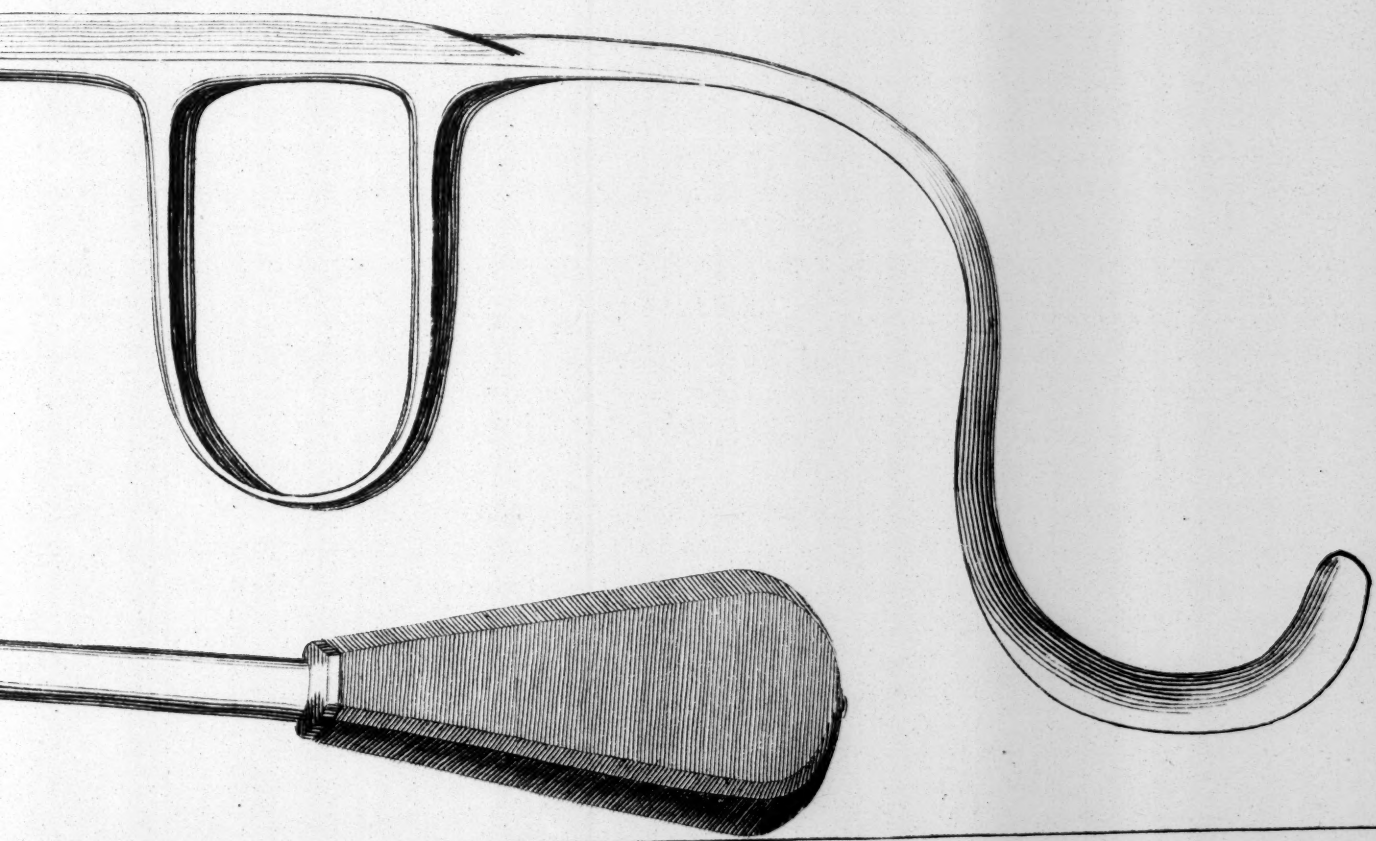

PLATE III.

FIG. 1. The ſtaff. To this inſtrument I have given a greater convexity, and ſhortened its neck, ſo as to adapt it the better to the operator's holding it himſelf.

FIG. 2. The knife, with which I make the external inciſion.

FIG. 3. The conductor. This inſtrument is longer than Mr. Daunt's: I have formed it curved; and made the creſt run along the ſide: This precludes the neceſſity of the operator's lateralizing his hand, as the inſtrument, on its introduction into the bladder, will lie in the direction it ſhould be held in. The form I have given the handle enſures a greater firmneſs to the operator.

FIG. 4. The lithotome. The difference between it and Mr. Daunt's may be eaſily perceived: I have given it a gentle curve, adapted to the conductor.

I HAVE frequently tried theſe inſtruments on the dead ſubject, and find that they render the operation extremely ſimple, and that the operator may be certain of invariably dividing the proſtate gland and neck of the bladder.

FINIS.

ERRATA.

Dedication, page vi. line 12. for *of ſurgeons*, read *of the ſurgeons*. Page 89. line 21. for, *is extremely*, read, *is ſo extremely*. Page 134. line 2. for *obviates*, read *obviate*. Page 138. line 5. for *num- of thoſe*, read *number of thoſe*.